Graham County Community Health Assessment

2021

GRAHAM COUNTY, NC
PUBLIC HEALTH

Community Health Assessment

Collaboration & Acknowledgements

This document was developed by Graham County Department of Public Health in partnership with the WNC Health Network, Graham Revitalization Economic Action Team (GREAT), Appalachian Mountain Community Health Center - Tallulah, Grace Extended Ministries, Robbinsville United Methodist Church, Graham County Schools, Graham County DSS, Robbinsville Pharmacy, and Snowbird Health Clinic as part of a local community health assessment process. We would like to thank and acknowledge several agencies and individuals for their contributions and support in conducting this health assessment:

Name	Agency	Role/Contribution	Duration of Participant	Agency Website
Beth Booth	Graham County Dept of Public Health	Co- CHA Lead	2020-2021	www.health.grahamcounty.org
Ivey Robinson	Graham County Dept of Public Health	Co-CHA Lead	2020-2021	www.health.grahamcounty.org
Emily Kujawa	WNC Health Network	CHA Consultant	2020-2021	www.wnchn.org
Michelle Shiplet	Graham Revitalization Economic Action Team (GREAT)	CHA Prioritization	Winter 2021	http://www.grahamcounty.net/great/great.htm
Tina Lee	Appalachian Mountain Community Health Center- Tallulah	CHA Prioritization	Winter 2021	http://www.amchc.org/
Michael Teem	Grace Extended Ministries	CHA Prioritization	Winter 2021	https://www.graceextendedministries.net/
Eric Reece	Robbinsville United Methodist Church	CHA Prioritization	Winter 2021	https://www.facebook.com/RobbinsvilleUMC/
Sunny Pringle	Graham County Schools	CHA Prioritization	Winter 2021	http://www.graham.k12.nc.us/
Angie Knight	Graham County Schools	Local school representative	Summer 2021	http://www.graham.k12.nc.us/
Melissa Blevins	Graham County DSS	Local DSS representative	Summer 2021	www.grahamcounty.org/social-services

Lindsey Jenkins	Robbinsville Pharmacy	Local pharmacy representative	Summer 2021	https://www.robbinsvillepharmacy.com/
Mary Postell-Jones	Snowbird Health Clinic	Tribal health representative	Summer 2021	https://cherokeehospital.org/locations/satellite-clinics/
Multiple Participants	Graham County Schools	Focus Group	Winter 2021	http://www.graham.k12.nc.us/

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Community Results Statement

Improving the health of Graham County in mind, body, and spirit.

Leadership for the Community Health Assessment Process

The leadership for the Graham County Community Health Assessment involved a wide range of community leaders and partners, with strong support from the faith-based community and the school. These partners make up a large portion of the community voice.

Name	Agency	Title	Agency Website
Michelle Shiplet	Graham Revitalization Economic Action Team (GREAT)	Executive Director	http://www.grahamcounty.net/great/great.htm
Tina Lee	Appalachian Mountain Community Health Center- Tallulah	Practice Manager	http://www.amchc.org/
Michael Teem	Grace Extended Ministries	Director/Pastor	https://www.graceextendedministries.net/
Eric Reece	Robbinsville United Methodist Church	Pastor	https://www.facebook.com/RobbinsvilleUMC/
Sunny Pringle	Graham County Schools	Crisis Intervention Team	http://www.graham.k12.nc.us/

Partnerships

The Partnerships for the Graham County Community Health Assessment involved a wide range of partners, with strong support from the school system. These partners make up a large portion of the community voice and have a wide range of knowledge.

Name	Agency	Title	Agency Website
Multiple Participants	Graham County Schools		http://www.graham.k12.nc.us/
Lindsey Jenkins	Robbinsville Pharmacy	Pharmacist	https://www.robbinsvillepharmacy.com/
Mary Postell-Jones	Snowbird Health Clinic	Nurse Practitioner	https://cherokeehospital.org/locations/satellite-clinics/
Melissa Blevins	Graham County DSS	DSS Administrator Officer/Security Officer	www.grahamcounty.org/social-services
Angie Knight	Graham County Schools	Superintendent	http://www.graham.k12.nc.us/

Regional/Contracted Services

Our county received support from **WNC Healthy Impact**, a partnership and coordinated process between hospitals, public health agencies, and key regional partners in western North Carolina working towards a vision of improved community health. We work together locally and regionally to assess health needs, develop collaborative plans, take action, and evaluate progress and impact. This innovative regional effort is coordinated and supported by **WNC Health Network**. WNC Health Network is the alliance of stakeholders working together to improve health and healthcare in western North Carolina. Learn more at www.WNCHN.org.

Theoretical Framework/Model

WNC Health Network provides local hospitals and public health agencies with tools and support to collect, visualize, and respond to complex community health data through Results-Based Accountability™ (RBA). RBA is a disciplined, common-sense approach to thinking and acting with a focus on how people, agencies, and communities are better off for our efforts.

Collaborative Process Summary

Phase 1 of Graham County's collaborative process began in January 2021 with the collection of community health data. For more details on this process see Chapter 1 – Community Health Assessment Process.

Graham County's local process involves collection of information from focus groups and community leadership, with support on a regional level from WNC Healthy Impact. Health priorities are identified through listening sessions with target groups, where insight is gathered about the priorities and how to address them. The community leaders and partners listed in the tables above serve roles in the collection of community data and action planning.

Key Findings

The total population for Graham County, as reported in the 2020 U.S. Census is 8,030 (United States Census Bureau, 2021). The overall leading cause of death (regardless of age) is heart disease (North Carolina State Center for Health Statistics, 2020). The WNC Healthy Impact Community Health Survey revealed 17.7% of residents reported Graham County as a fair/poor place to live. Seventy-six percent of survey respondents reported that they always or usually have someone to rely on for help when needed. Twenty-two percent of respondents reported more than 7 days of poor mental health in a month, up from 16.4% or respondents in 2018 (WNC Health Network, 2021). Respondents to the Key Informant Survey (more details available in Appendix A) identified substance misuse (100% of respondents), mental health (87.5%), and obesity (87.5%) as major problems within Graham County (WNCHN - Key Informant Survey, 2021).

While the COVID-19 pandemic limited our ability to conduct focus groups this year, we were able to meet with members of Graham County Schools to discuss priorities for this cycle. Substance use and mental health were discussed as concerns. Access to healthy food, physical activity, and exercise were also discussed due to the lack of offerings for healthy food and exercise. Graham County remains poor in community and health resources but is beginning to build the partnerships necessary to rectify this.

Health Priorities

Community leaders convened on January 14, 2022, to identify the top priorities for the coming CHA cycle. These two top priorities were narrowed down from 5 options and chosen based on community need, available and potential resources, and feasibility. Mental health, substance use, obesity, and heart disease were all discussed as top concerns, along with cancer. Ultimately, two priorities were formed from the top four concerns:

Priority 1: Mental Health and Substance Use
Priority 2: Obesity and Heart Disease

Next Steps

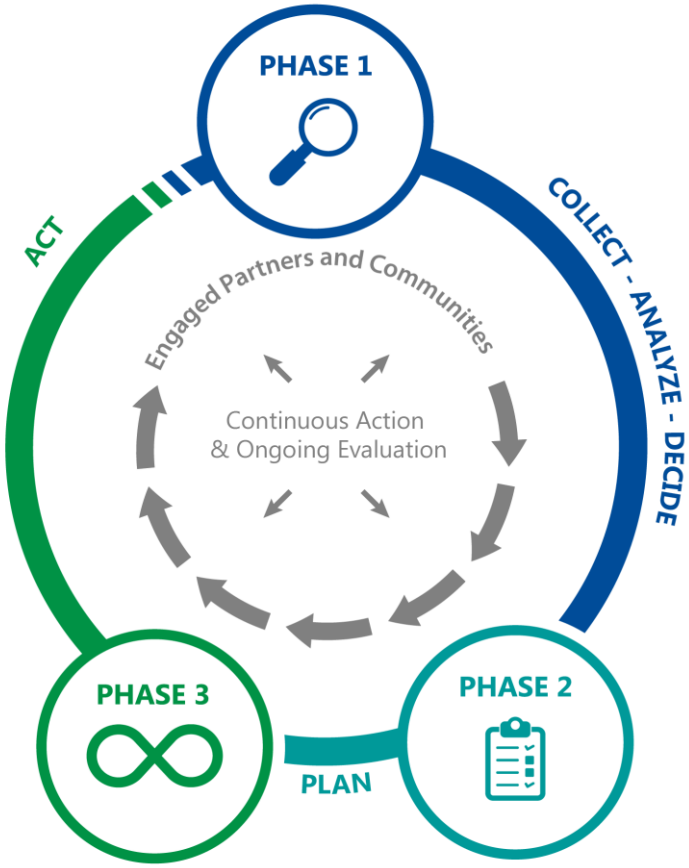
- Continue to build the infrastructure necessary to address both mental health and substance use.
- Collaborate with local medical providers to ensure county citizens have access to medical providers to address physical health needs.
- Include VAYA and Appalachian Community Services in the planning of community programs targeting mental health and substance use.
- Continue to facilitate the Graham County Substance Use Coalition to address substance use needs in the County.
- Completion of a substance use needs assessment to develop a strategic plan for the utilization of opioid settlement funds.
- Begin tele-obstetrical services in collaboration with Harris Regional Hospital at the health department.
- Explore evidence-based programs to address wellness.
- Collaborate with the school to implement programs targeted toward youth for substance use prevention and wellness.
- Develop and publish the Community Health Improvement Plan (CHIP) on an electronic Scorecard.
- Requests for access to the full set of data used in the development of the 2021 Community Health Assessment should be directed to:
    - Ivey Robinson: ivey.robinson@grahamcounty.org

Chapter 1- Community Health Assessment Process

Purpose

Community health assessment (CHA) is an important part of improving and promoting the health of county residents. A CHA results in a public report which describes the health indicators, status of the community, recent changes, and necessary changes to reach a community's desired health-related results.

Phases of the Community Health Improvement Process:

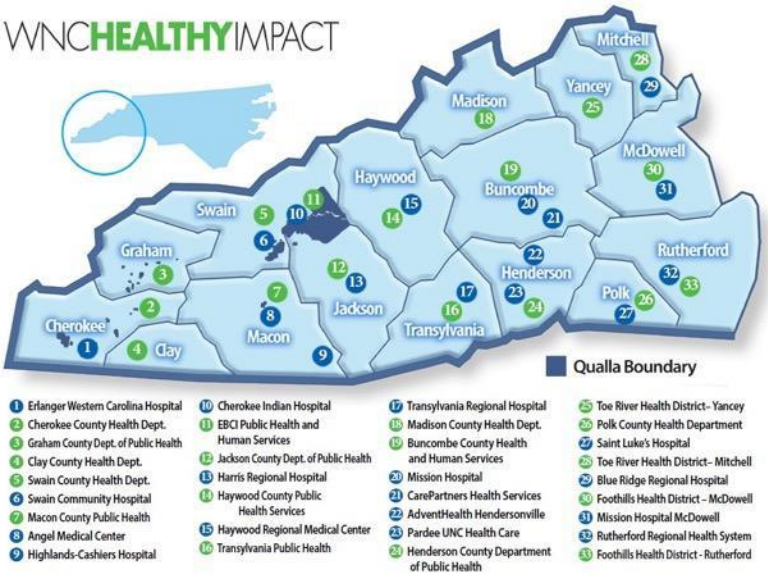


Definition of Community

Community is defined as "county" for the purposes of the North Carolina Community Health Assessment Process. Graham County is included in Erlanger Health System's service area for the purposes of community health improvement, and as such they were key partners in this local level assessment.

WNC Healthy Impact

WNC Healthy Impact is a partnership among local and regional hospitals, public health agencies, and key regional partners towards a vision of improved community health. The vision is achieved by developing collaborative plans, taking action, and evaluating progress. More information is at



www.wnchn.org/wnchealthyimpact.

Data Collection

The set of data reviewed for our community health assessment process is comprehensive, though not all of it is presented in this document. Within this community health assessment, we share a general overview of health and influencing factors, then focus more on priority health issues identified through a collaborative process. Our assessment also highlights some of our community strengths and resources available to help address our most pressing issues.

Core Dataset Collection

The data came from the WNC Healthy Impact regional data and local data. To ensure a comprehensive understanding, the dataset includes both secondary (existing) and primary (newly collected) data. The following data set elements and collection are supported by WNC Healthy Impact data consulting team, a survey vendor, and partner data needs and input:

- A comprehensive set of publicly available secondary data metrics with our county compared to the sixteen county WNC region
- Set of maps using Census and American Community Survey (ACS) data
- WNC Healthy Impact Community Health Survey (cell phone, landline and internet-based survey) of a random sample of adults in the County
- Online Key Informant Survey

See **Appendix A** for details on the regional data collection methodology.

Additional Community-Level Data

Additional qualitative data was collected through a focus group with Graham County Schools. The findings of this focus group are discussed later in this document. See Appendix A for details on the data collection process.

Health Resources Inventory

We conducted an inventory of available resources of our community by reviewing a subset of existing resources currently listed in the 2-1-1 database for our county as well as working with partners to include additional information. See **Chapter 6** for more details related to this process.

Community Input & Engagement

Including input from the community is a critical element of the community health assessment process. Our county included community input and engagement in a number of ways:

- Partnership on conducting the health assessment process
- Through primary data collection efforts (survey, key informant interviews, listening sessions, etc.)
- By reviewing and making sense of the data to better understand the story behind the numbers with data team
- In the identification and prioritization of health issues

In addition, community engagement is an ongoing focus for our community and partners as we move forward to the collaborative planning phase of the community health improvement process. Partners and stakeholders with current efforts or interest related to priority health issues will continue to be engaged. We also plan to work together with our partners to help ensure that programs and strategies in our community are developed and implemented with community members and partners.

At-Risk & Vulnerable Populations

Throughout our community health assessment process, our team was focused on understanding general health status and related factors for the entire population of our county as well as the groups particularly at risk for health disparities or adverse health outcomes. For the purposes of the overall community health assessment, we aimed to understand differences in health outcomes, correlated variables, and access, particularly among medically underserved, low-income, and/or minority populations, and others experiencing health disparities.

The at-risk and vulnerable populations of focus for our process and product include:

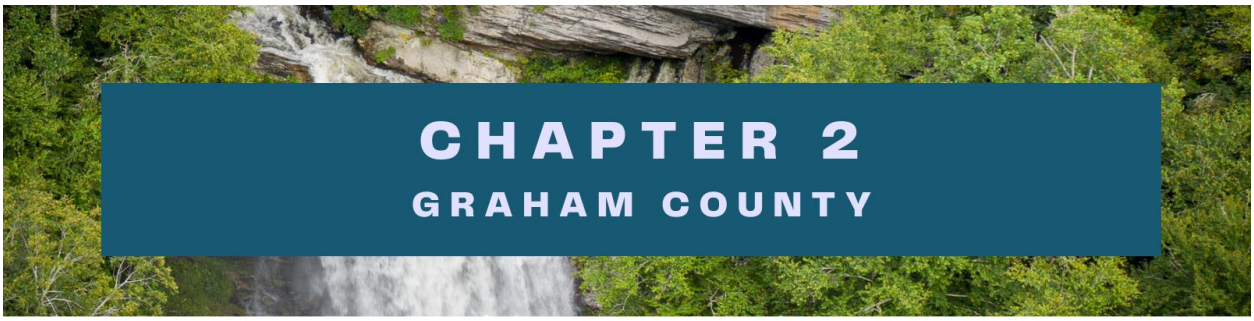
- Older Adults (65 and older)
- American Indians
- Individuals living below the poverty level
- Individuals with disabilities
- Individuals with lower education
- Individuals with substance use disorder

Though there are not universally accepted definitions of the three groups, here are some basic definitions from the Health Department Accreditation Self-Assessment Instrument (in some cases definitions have been slightly altered to better represent our region):

Underserved populations relate to those who do not access health care either because there is a lack of services or providers available or because of limitations such as income, literacy/language barriers or understanding on how to access services, cultural competency of clinicians, trust, transportation, or other barriers.

At-risk populations are the members of a particular group who are likely to, or have the potential to, get a specified health condition. This could be from engaging in behavior (such as pregnant women who smoke) that could cause a specified health condition, having an indicator or precursor (high blood pressure) that could lead to a specified health condition or having a high ACE score (traumatic experiences), which is correlated with increased risk of specified health conditions.

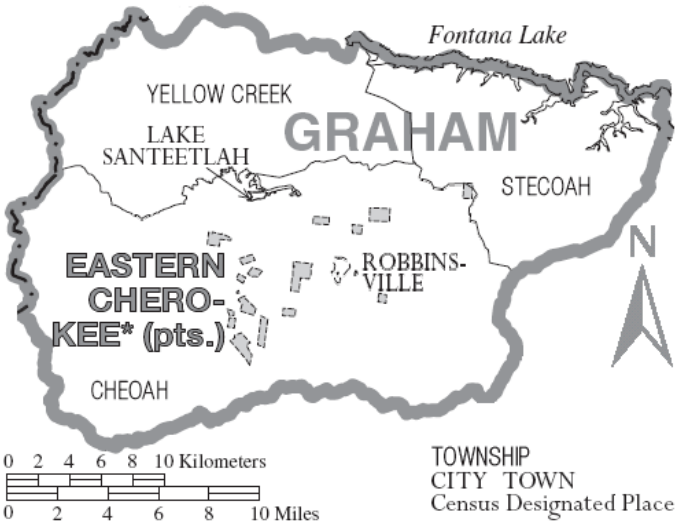
A **vulnerable population** is one that may be more susceptible than the general population to risk factors that lead to poor health outcomes. Vulnerable populations, a type of at-risk population, can be classified by such factors as discrimination/ prejudice based on race/ethnicity, socio-economic status, gender. cultural factors and age groups.



Chapter 2 – Graham County

Location and Geography of Graham County

Graham County is known for its tranquility, isolation and rugged mountain lands. The beauty and the comfort of the county draws tourists and new residents to this rural area. Many tourists flock to the mountains for the thrill of driving on the curvy roads, in particular, one section of Highway 28 known as "the dragon". We also have many who come to hike our portion of the Appalachian Trail or visit Joyce Kilmer Forest (Graham County Department of Public Health, 2015).



The county is located in the far western part of North Carolina, bordering Tennessee, and is surrounded by mountains with the Unicoi Mountains to the West; the Snowbird Mountains to the South; and the North and East crossed by the Cheoah Range and the Yellow Creek Mountains. The Cheoah River flows into the Little Tennessee River in the western section of the County (Graham County DPH, 2015) (Map: Wikimedia Commons, 2007).

The County has a total of 186,965 acres of land. The United States Forest Service owns 111,618; Tennessee Valley Authority owns 3,522; Eastern Band of The Cherokee Indians owns 2,249; Brookfield Smoky Mountain Hydropower, LLC owns 5,995; and Private landholders own 63,581 (Graham County DPH, 2015).

The rugged and remote aspects of Graham County yield unique challenges to its residents. Access to healthy food, places of employment, safe places for physical activity, and schools, requires a commute. Without reliable transportation, accessing these basic needs becomes even more of a challenge. Additionally, due to its situation among some of the highest mountains on the East Coast, Graham County is vulnerable to adverse weather, which necessitates a high level of preparedness.

History of Graham County

Graham County was formed from the eastern part of Cherokee County in 1872 to make enforcement of the law and access to the courts more uniform and accessible for the families who settled in the mountains of WNC. It was named for William A. Graham, a senator who helped with the passage of the act to form the County (Graham County DPH, 2015).

Long before European settlers, the area that would become Graham County was home to a large group of Cherokee Indians. Part of the original Trail of Tears still exists in Graham County on a six-mile section of road called Tatham Gap, which connects Graham and Cherokee counties. The Eastern Band of Cherokee Indians remains in western NC; according to the tribe's epidemiologist, there are approximately 11,482 members living on tribal land, which spans five counties including Graham County (M. Tuttle, personal communication, February 2, 2022).

Rural Appalachia, while abundant in natural resources and beauty, has long been associated with poverty. Over the course of the last century, Appalachia has overcome the loss of coal and logging industries and evolved alongside the economic mainstream, yet it still falls behind the rest of the nation in most economic indicators. According to the Appalachian Regional Commission (ARC), Graham County is classified as "at-risk" of becoming economically distressed, ranking between the worst 10 percent and 25 percent of the nation's counties for economic status (ARC, 2021). This is an improvement from 2018, when Graham County was classified as "distressed", ranking in the worst ten percent of the nation's counties for economic status (Graham County DPH, 2018).

Population

According to data from the 2020 U.S. Census, the total population of Graham County is 8,030. The population has decreased slightly by about 9.4% over the past decade (down from 8,861 in 2010). The data collected from the 2020 U.S. Census shows an equal distribution of men and women in Graham County (U.S. Census Bureau, 2021). Graham County is home to an estimated 461 veterans. The chart below shows the age distribution of these veterans; the greatest proportion of Graham's veteran population are between ages 65 and 74 (U.S. Census Bureau, 2021).

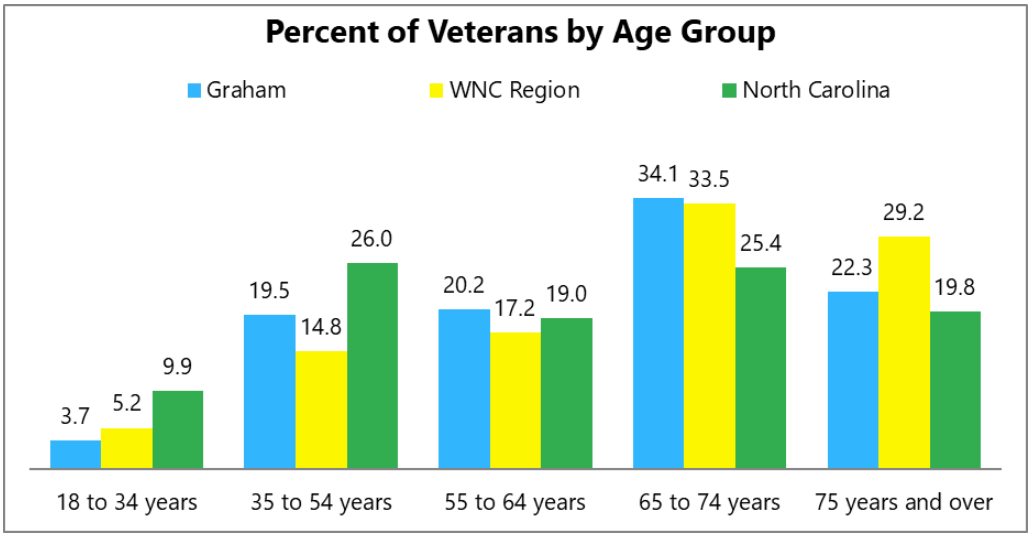


FIGURE 1. U.S. Census Bureau. (2021). Veteran Status: 2019 ACS 5-Year Estimates. [Data tables]. Available from http://census.data.gov

Residents ages 65 and older represent a much larger proportion of the overall population in Graham County (24.5%) than in the state as a whole (16.7%) (U.S. Census Bureau, 2021). In terms of future health resource planning, it will be important to understand how this segment of the population, a group that utilizes health care services at a higher rate than other age groups, may change in the coming years. This is especially important given that this segment of the population is expected to continue to grow over the next decade.

According to data from the U.S. Census Bureau, Graham County's population is predominantly White (88.6%), 7.9% of the population identifies as American Indian/Alaska Native, and 3.7% of the population identifies as Hispanic or Latino (U.S. Census Bureau, 2021). Approximately 904 Native Americans reside in Graham County, predominantly in an area that is referred to as "Snowbird"(M. Tuttle, personal communication, February 2, 2022).

COVID-19 Pandemic (Optional)

As of February 18, 2022, Graham County reported 2,231 total cases of COVID-19 and 30 total deaths (NC DHHS, 2022). Forty-six percent of the County's population has received two doses of a VOCID-19 vaccine or one dose of Johnson & Johnson, with 51% having at least one dose (NC DHHS, 2022). The COVID-19 pandemic impacted our community engagement process in several ways. While the County aimed to conduct several focus groups, social distancing protocols and outbreaks prevented all but one of these from occurring. Internet access and technology barriers further prevented us from conducting these focus groups virtually.

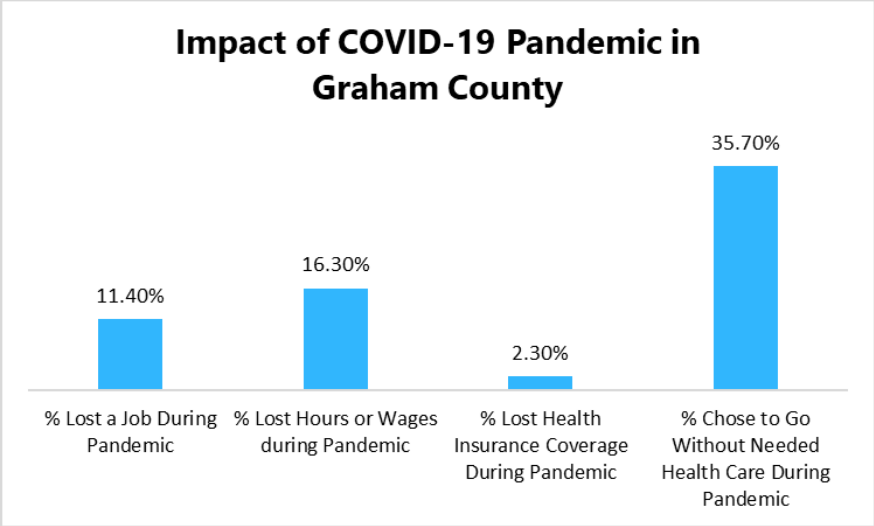


FIGURE 2. The Impact of COVID-19 Pandemic in Graham County.
Available from: WNC Health Network, 2021

Chapter 3 – Social & Economic Factors

As described by Healthy People 2030, economic stability, education access and quality, healthcare access and quality, neighborhood and built environment, and social community and context are five important domains of social determinants of health. Social determinants of health (SDOH) are the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks. (Office of Disease Prevention and Health Promotion, 2020)

Social and economic factors include income, education, employment, community safety, and social support. Social and economic opportunities, such as good schools or stable jobs, can influence one's ability to accumulate savings and afford healthy foods, quality housing, and higher education. A lack of these opportunities, such as when experiencing unemployment or low social support, can limit choices and impede stability. Social and economic factors, which will be discussed throughout this chapter, have the ability to influence our lifestyle choices, such as what foods we eat, as well as our ability to afford medical care, housing, and higher education. In turn, these impact both individual and community health (County Health Rankings, 2022).

Income & Poverty

"Income provides economic resources that shape choices about housing, education, childcare, food, medical care, and more. Wealth, the accumulation of savings and assets, helps cushion and protect us in times of economic distress. As income and wealth increase or decrease, so does health" (County Health Rankings, 2021).

According to data from the U.S. Census Bureau, the median household income, median family income, and per capita income are all lower in Graham County than in the state and region, as represented in the graph below (U.S. Census Bureau, 2021). However, the median household income, median family income, and per capita income have all increased for Graham County since the 2018 Community Health Assessment (Graham County DPH, 2018).

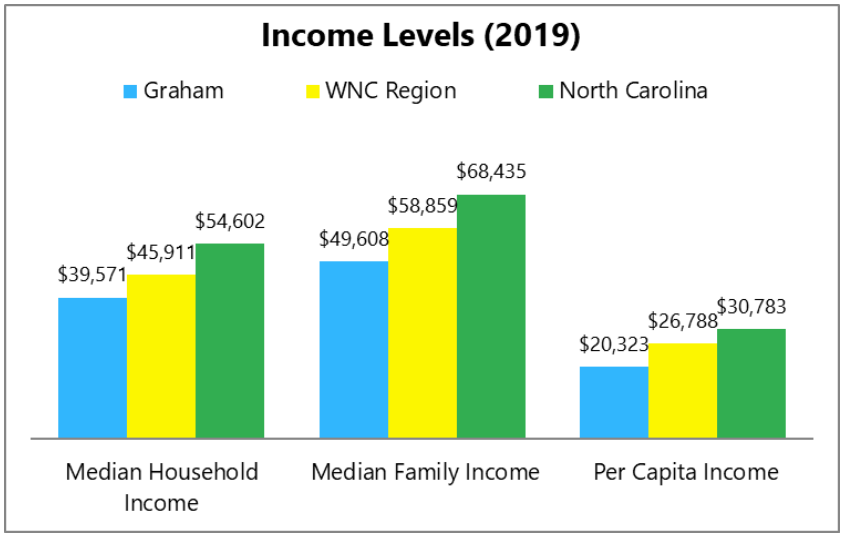


FIGURE 3. U.S. Census Bureau. (2021). Selected Economic Characteristics: ACS 5-Year Estimates. [Data tables]. Available from http://census.data.gov

Approximately 17% of Graham County residents fall below the poverty level, compared to 19.5% in 2010. Slightly less than half of the County's residents fall under the 200% federal poverty level. The graph below shows the percent of residents living below the poverty level by age, in comparison to both the region and the state. For each age group, the percent below poverty is higher for Graham County residents than for North Carolinians as a whole (U.S. Census Bureau, 2021).

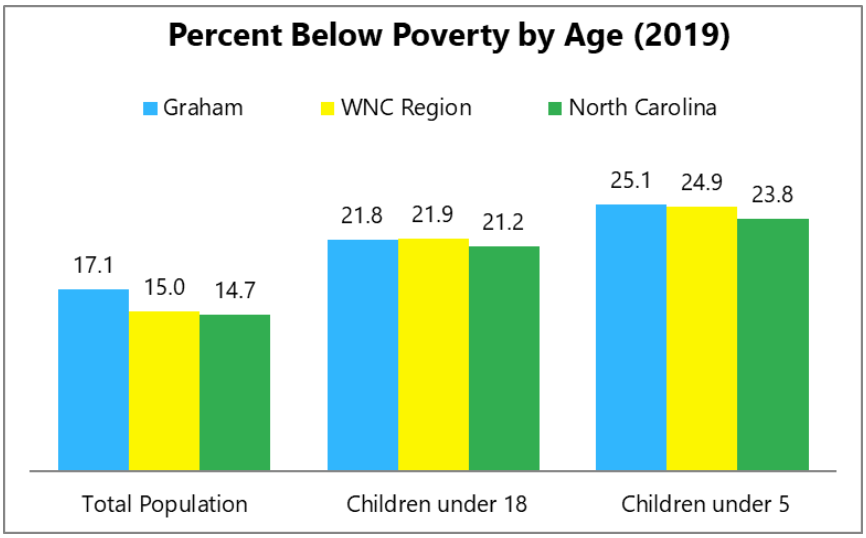


FIGURE 4. U.S. Census Bureau. (2021). Poverty Status in the Past 12 Months: ACS 5-Year Estimates. [Data tables]. Available from http://census.data.gov

The percentage of students that qualify for free or reduced school meals is often used as a proxy for measuring poverty within a community or population. The graph below shows that a larger proportion of Graham County students qualify for free- or reduced school meals compared to students within the State and region. It is promising to see that, although more than 50% of Graham County students still qualify, the proportion of students determined to be "needy" is trending downwards (North Carolina Department of Public Instruction, 2021).

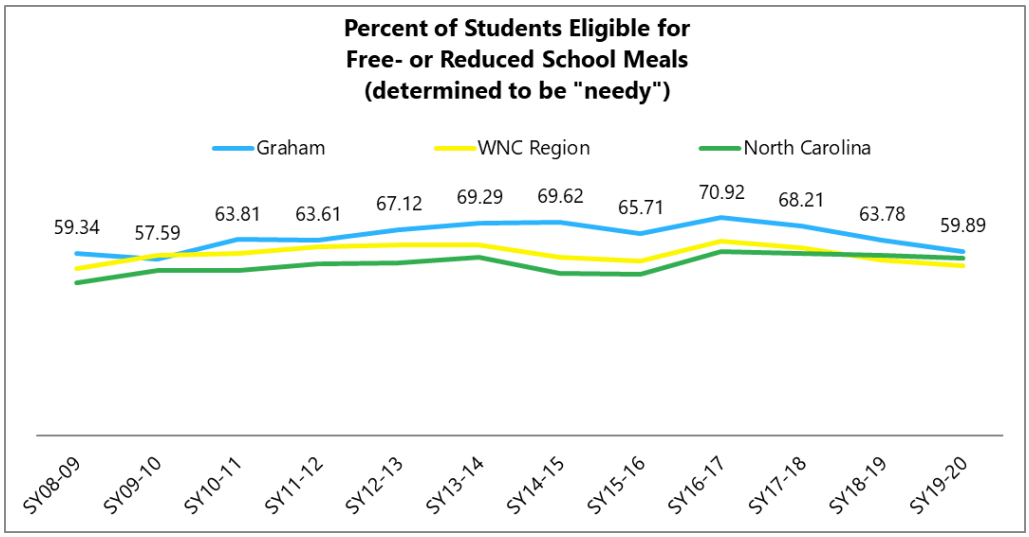


FIGURE 5. NC Department of Public Instruction. (2021). Child Nutrition Division: Free and Reduced Student Data by Site. [Data tables]. Available from https://childnutrition.ncpublicschools.gov/information-resources/eligibility/data-reports/data-reports

Transportation is also tied into health outcomes, as well as income and poverty. Transportation creates avenues to opportunities like employment and education and contributes to the accessibility of healthcare (Stacy et al., 2020). However, a lack of transportation can limit job opportunities and delay access to healthcare, especially in rural communities where other options like biking, walking, or public transportation do not exist (Rural Health Information Hub, n.d.; Stacy et al., 2020). In Graham County, 4.4% of owner-occupied households do not have access to a vehicle while nearly 16% of renter-occupied households do not have access to a vehicle. The chart below shows that vehicle access is a larger issue among older populations (U.S. Census Bureau, 2021). Considering the remote geography of Graham County and the sparse healthcare and food retail locations, lack of transportation is a significant barrier to a healthy lifestyle (Graham County Public Health, 2018).

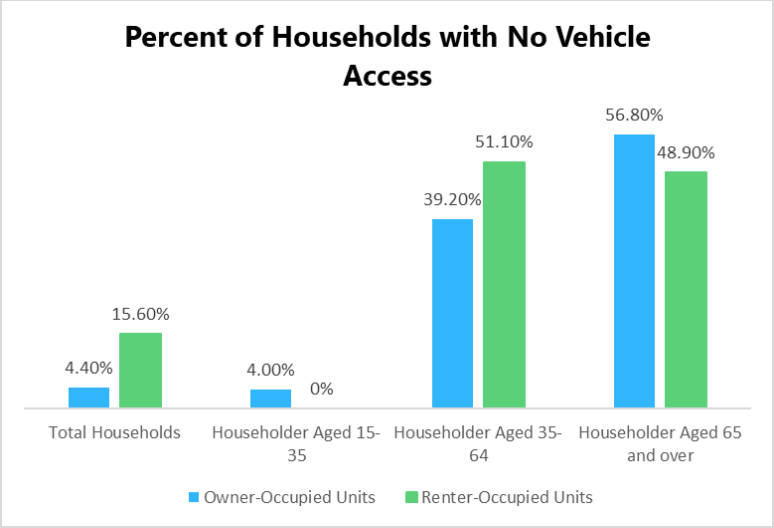


FIGURE 6. U.S. Census Bureau. (2021). Tenure by Vehicles Available by Age of Householder: 2014-2018 ACS 5-Year Estimates. [Data tables]. Available from http://census.data.gov

Employment

"Employment provides income and, often, benefits that can support healthy lifestyle choices. Unemployment and underemployment limit these choices, and negatively affect both quality of life and health overall. The economic condition of a community and an individual's level of educational attainment both play important roles in shaping employment opportunities" (County Health Rankings, 2021).

The graph below depicts the unemployment rate trend, comparing Graham County to the state and the Western North Carolina region. The unemployment rate for Graham County has consistently been higher than that of both the region and the state for more than a decade. A steady decline can be seen until 2020 and the beginning of the COVID-19 pandemic. The onset of the pandemic forced employers to lay off or furlough their employees in an effort to suppress the spread of the virus; in turn, this caused the unemployment rate to rapidly increase (NC Department of Commerce, 2021).

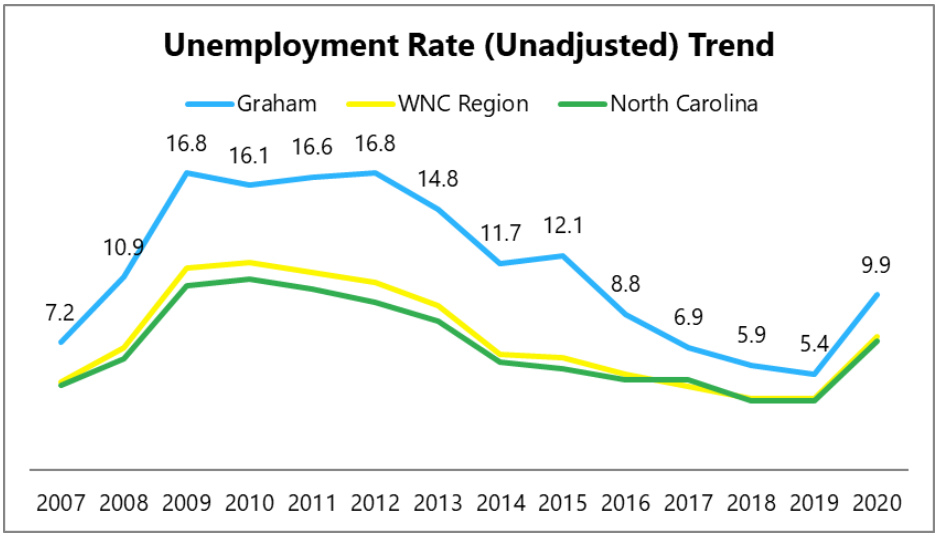


FIGURE 7. NC Department of Commerce. (2021). Demand Driven Delivery System: Local Area Unemployment Statistics. [Data tables]. Available from https://d4.nccommerce.com/

The largest employment sectors in Graham County include construction (21.63%), public administration (13.79%), the retail trade (12.81%), educational services (12.15%), and accommodation and food services (11.61%) (NC Department of Commerce, 2021). Employment in the construction sector has increased since 2018 (up from 18.6%) while employment in accommodation and food services has decreased (down from 17.8%) (NC Department of Commerce, 2021; Graham County DPH, 2018). Across all employment sectors in 2020, the average weekly wage in Graham is $740, which is slightly lower than the regional average of $797.50, and much lower than the state average of $1,209 (NC Department of Commerce, 2021).

Education

"Better educated individuals live longer, healthier lives than those with less education, and their children are more likely to thrive. This is true even when factors like income are taken into account" (County Health Rankings, 2021).

In the 2019-2020 school year, 87.7% of Graham County students graduated high school, which is similar to both the regional (89.1%) and state (87.6%) rates (Public Schools of North Carolina, 2021). The graph

below shows that students who identify as female graduated at a higher rate than students who identify as male (Public Schools of North Carolina, 2021).

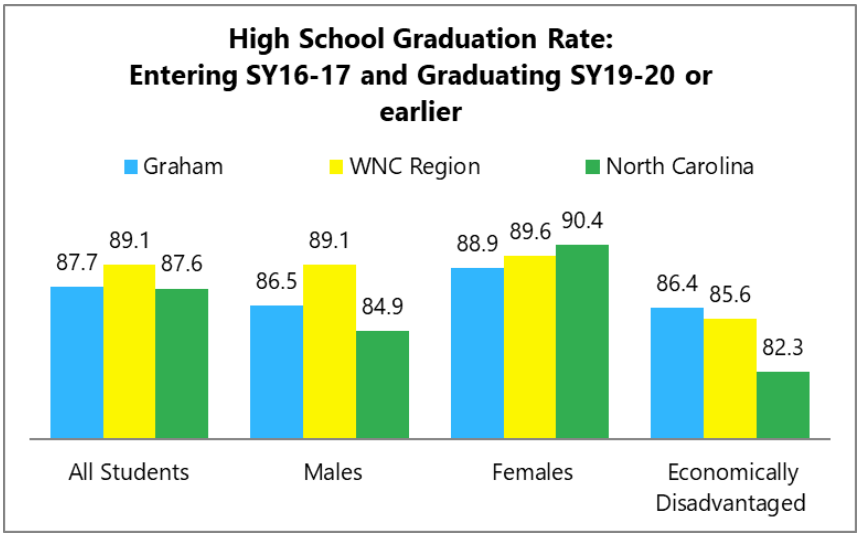


FIGURE 8. Public Schools of North Carolina. (2021). 4-Year Cohort Graduation Rate Report. [Data tables]. Available from http://www.ncpublicschools.org/accountability/reporting/cohortgradrate.

As depicted in the graph below, the percent of Graham County residents with a high school degree (36.3%) ranked higher than that of the region (30.1%) and the state (25.7%) in 2019. Graham also ranks slightly higher in attaining some college education (no degree); however, the percentage of those attaining a college degree remains low compared to the region and the state (U.S. Census Bureau, 2021).

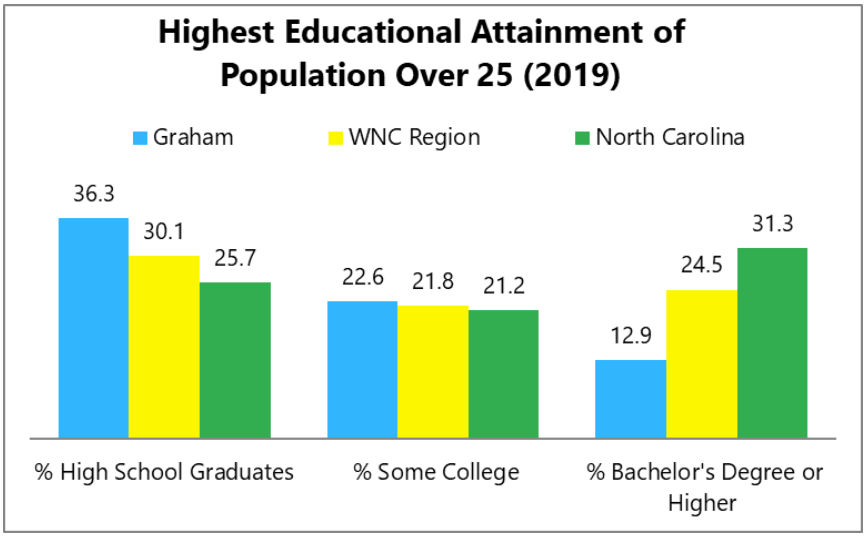


FIGURE 9. U.S. Census Bureau. (2021). Educational Attainment: ACS 5-Year Estimates. [Data tables]. Available from http://census.data.gov

The chart below shows that a slightly smaller proportion of Graham County students are grade level proficient than their peers within the region and the state (NC Department of Public Instruction, 2020). A closer look at the data shows that, while this is true overall, a larger proportion of Graham County 3rd graders (71.3%) are grade level proficient on the end-of-grade math test than their peers within the

region (70.3%) and the state (64.3%) (NC DPI, 2020). In addition, the chart and data show that a greater proportion of Graham County students who identify as Hispanic (57.1%) scored as grade level proficient than their peers within the region (54.0%) and state (50.1%).

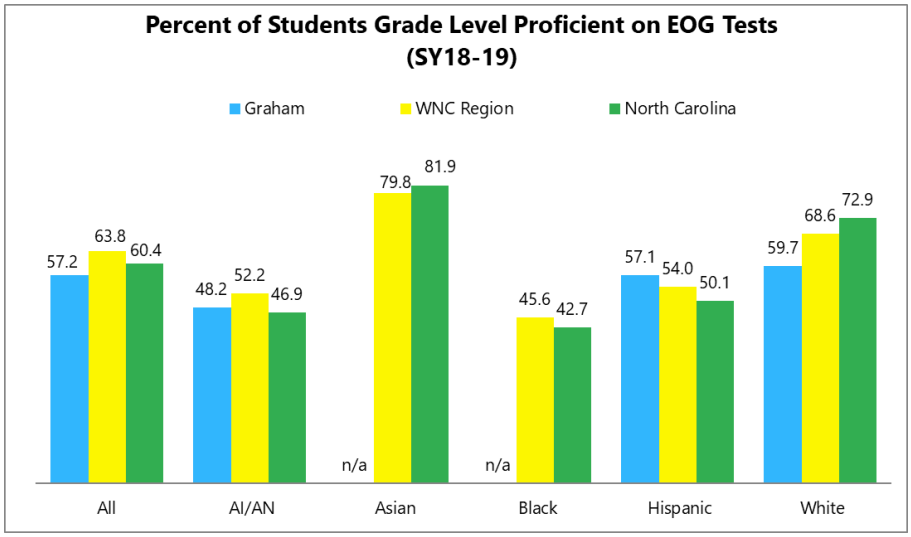


FIGURE 10. NC Department of Public Instruction. (2020). NC School Report Cards: District Profile. [Data tables]. Available from http://www.ncpublicschools.org/src/.

Racism and Discrimination

"Racism is an underlying or root cause of health inequities and leads to unfair outcomes between racial and ethnic groups. Different geographic areas and various racial and ethnic groups experience challenges or advantages that lead to stark differences in life expectancy, infant mortality, poverty, and more" (County Health Rankings, 2021).

According to data from the U.S. Census Bureau, Graham County's population is predominantly White (88.6%), nearly 8% of the population identifies as American Indian/Alaska Native, and 3.7% of the population identifies as Hispanic or Latino (U.S. Census Bureau, 2021). According to data collected by the U.S. Census communities of color are growing within the County. Because of the lasting impact of racism and discrimination, it is important to collect data on the experiences of our neighbors and fellow community members. Additionally, recent analysis of regional WNC Healthy Impact Community Health Survey data highlights the existing inequities in western North Carolina and that communities of color were more at risk for poor health outcomes (WNC Health Network, 2020).

Results from the WNC Healthy Impact Community Health Survey show that nearly a quarter of respondents from Graham County disagreed that the community is welcoming to people of all races and ethnicities. Almost 40% of the respondents said that they had experienced discrimination due to their accent or the way they speak (WNC Health Network, 2021). It is important to recognize these experiences and to work together as a community to be more welcoming and accepting, while addressing the systems that have historically separated groups of people based on the color of their skin or where they are from.

Western North Carolina Healthy Impact Community Health Survey Results Racism & Discrimination		
	Graham	**WNC**
% Disagree that the Community is a Welcoming Place for People of All Races and Ethnicities	22.60%	16.80%
% Often/sometimes threatened or harassed due to race/ethnicity	7.00%	9.70%
% Often/Sometimes Treated Unfairly due to Race/Ethnicity When Getting Medical Care	5.70%	4.50%
% Often/Sometimes Treated Unfairly due to Race/Ethnicity At School	8.50%	9.00%
% Often/Sometimes Criticized for My Accent or the Way I Speak	39.60%	28.60%

TABLE 1. WNC Health Network. (2021). 2021 WNC Healthy Impact Community Health Survey: Data Workbook. [Data set].

Community Safety

"Injuries through accidents or violence are the third leading cause of death in the United States, and the leading cause for those between the ages of one and 44. Accidents and violence affect health and quality of life in the short and long-term, for those both directly and indirectly affected, and living in unsafe neighborhoods can impact health in a multitude of ways" (County Health Rankings, 2021).

Community safety reflects not only violent acts in neighborhoods and homes, but also injuries caused unintentionally through accidents. Detailed crime information for Graham County from the preferred source is limited and is not fully presented in this report (Refer to the WNC Health Network's Regional Dataset for a review of the few data points that are available). However, data was available in a few areas.

The crime rate for 2019 was 1,395.7 per 100,000 population, much lower than that of both the region (2,123.5) and state (2,909.2) (North Carolina Department of Justice, 2021). The property crime rate was 1,261.0 per 100,000 population and the violent crime rate was 134.7 per 100,000 population; both measures were lower for Graham County than for the region and state (North Carolina Department of Justice, 2021). In addition, crime rates for each measure have decreased in Graham County from 2015.

Data from the North Carolina Department of Justice showed no reports of sexual assault or domestic violence in the 2019-2020 time period (NC Department of Administration, 2021).

The table below reports the number of child abuse and neglect cases that occurred for years 2016-2020 (UNC-CH Jordan Institute, 2021). Substantiated reports are the "number of reports with a finding of abuse and neglect, abuse, neglect, or dependency in the state fiscal year (July-June)" (Duncan et al., 2017).

Child Abuse & Neglect Findings				
	Occurrence of Findings by Year			
Type of Findings	**FY 16-17**	**FY 17-18**	**FY 18-19**	**FY 19-20**
Total Substantiated Findings (#)	4	7	3	4
Total Substantiated Findings (%)	6%	11%	4%	7%
Abuse and Neglect	*2*	*0*	*0*	*0*
Abuse	*1*	*3*	*2*	*3*
Neglect	*1*	*2*	*1*	*1*
Dependency	*0*	*2*	*0*	*0*
Unsubstantiated (#)	10	6	9	8
Unsubstantiated (%)	14%	10%	11%	15%
Number of Children Investigated with Report of Abuse & Neglect	69	61	83	54

TABLE 2. UNC-CH Jordan Institute for Families Management Assistance for Child Welfare, Work First and Food & Nutrition Services in North Carolina. (2021). Abuse and Neglect: Longitudinal Data: Type of Finding by Category. [Data tables]. Available from http://ssw.unc.edu/ma/.; UNC-CH Jordan Institute for Families Management Assistance for Child Welfare, Work First and Food & Nutrition Services in North Carolina. (2021). Abuse and Neglect: Longitudinal Data: Investigated Reports of Abuse and Neglect: Demographics. [Data tables]. Available from http://ssw.unc.edu/ma/.

Housing and Transportation

"The housing options and transit systems that shape our communities'-built environments affect where we live and how we get from place to place. The choices we make about housing and transportation, and the opportunities underlying these choices, also affect our health" (County Health Rankings, 2021).

The following graphs show the percent of households (rented and owned) that spend more than 30% of their household income on housing. Households that spend this proportion of their income on housing are considered to be "cost-burdened", which limits the household's ability to spend their income on other necessities, like food and healthcare (Healthy People 2030, n.d.) . This may also push these households to live in substandard housing, which may expose them to vermin or mold, or lead them to "overcrowding". Overcrowding, when more than one family lives in one dwelling, has the potential to negatively impact mental health, stress levels, and other health outcomes (Healthy People 2030, n.d.).

The chart below shows that the percentage of rented units that are considered to be cost-burdened in Graham County is much lower than in the rest of the western region and the state overall. The median gross rent for the County is $499 (U.S. Census Bureau, 2021).

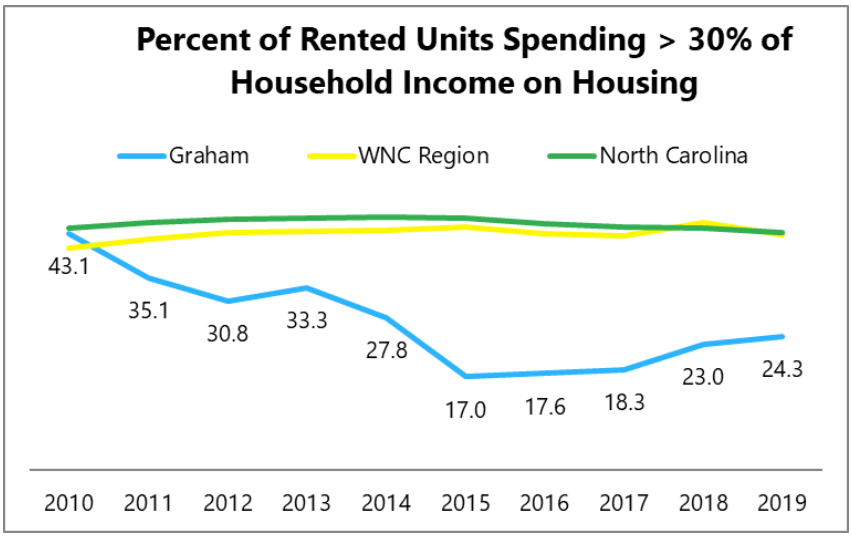


FIGURE 11. U.S. Census Bureau. (2021). Gross Rent as a Percentage of Household Income in the Past 12 Months: ACS 5-Year Estimates. [Data tables]. Available from http://census.data.gov

The percentage of owned units that are cost-burdened is slightly higher for homeowners in Graham County compared to those in the western region as a whole, and the state. The median monthly owner costs for the County is $912 (U.S. Census Bureau, 2021).

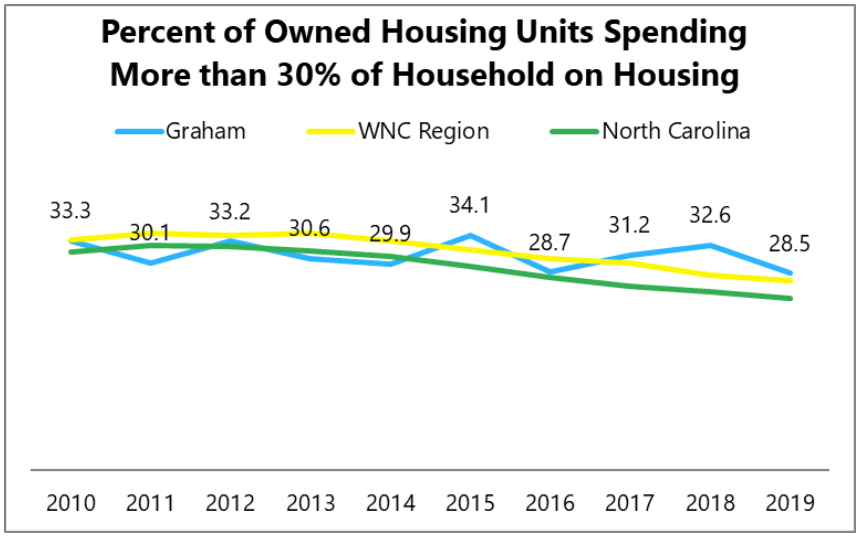


FIGURE 12. U.S. Census Bureau. (2021). Mortgage Status by Selected Monthly Owner Costs as a Percentage of Household Income in the Past 12 Months: ACS 5-Year Estimates. [Data tables]. Available from http://census.data.gov

According to the community survey results, 12.1% of Graham County residents reported experiencing a time in the past year when their home was without electricity, heating or water (WNC Health Network, 2021). Twenty percent reported being worried or stressed about paying their rent or mortgage at some point in the past year (WNC Health Network, 2021). According to data from the American Community Survey, 4.4% of owner-occupied households were without a vehicle and 15.6% of renter-occupied households were without a vehicle in the 2015-2019 time period (U.S. Census Bureau, 2021).

Family & Social Support

"People with greater social support, less isolation, and greater interpersonal trust live longer and healthier lives than those who are socially isolated. Neighborhoods richer in social capital provide residents with greater access to support and resources than those with less social capital" (County Health Rankings, 2021).

According to the community health survey results, the percent of individuals claiming to receive the social and emotional support that they need has decreased over the last three years from 85% in 2018 to 71% in 2021. At the same time, those that reported not receiving mental health care or counseling services that they need has increased 210% since 2015, from 6.2% to 19.2% (WNC Health Network, 2021). However, 76.3% of respondents reported that they had someone to rely on, which is slightly greater than the regional average of 75.7% (WNC Health Network, 2021).

Western North Carolina Healthy Impact Community Health Survey Results Family & Social Support				
	2012	**2015**	**2018**	**2021**
% "Always/Usually" Get Needed Social/Emotional Support	73.9%	80.6%	84.9%	70.9%
% Always or Usually Have Someone to Rely on for Help When Needed	–	–	–	76.3%
% Unable to Obtain Needed Mental Health Services in Past Year	6.5%	6.2%	12.2%	19.2%

TABLE 3. WNC Health Network. (2021). 2021 WNC Healthy Impact Community Health Survey: Data Workbook. [Data set].

Chapter 4 – Health Data Findings Summary

Mortality

The following table lists the 15 leading causes of death in the County as a five-year aggregate from 2015 to 2019 (North Carolina State Center for Health Statistics, 2020). While the overall 15 causes have remained unchanged from 2018, several of the rankings have changed. Alzheimer's disease has decreased from 9th place to 12th. Deaths from chronic liver disease and cirrhosis have become more common (moving from 10th place in 2018 to 8th place in the most recent rankings), as have deaths from unintentional motor vehicle injuries (12th place to 10th place).

Fifteen Leading Causes of Death - Graham County					
Rank	**Cause of Death**	**# Deaths**	**Death Rate***	**Rank (2015-18)**	**Change**
1	Diseases of Heart	124	171.4	1	–
2	Cancer	113	157.5	2	–
3	Chronic Lower Respiratory Diseases	49	65.1	4	+1
4	All Other Unintentional Injuries	22	39.3	3	-1
5	Cerebrovascular Disease	23	34.6	5	–
6	Diabetes Mellitus	18	31.4	7	+1
7	Suicide	10	24.8	6	-1
8	Chronic Liver Disease and Cirrhosis	13	21.4	10	+2
9	Nephritis, Nephrotic Syndrome, and Nephrosis	12	18.3	8	-1
10	Unintentional Motor Vehicle Injuries	7	17.9	12	+2
11	Pneumonia and Influenza	13	16.7	11	–
12	Alzheimer's disease	11	13.9	9	-3
13	Septicemia	6	11.1	14	+1
14	Homicide	2	5.4	13	-1
15	Acquired Immune Deficiency Syndrome	0	0.0	0	–
	All Causes (some not listed)	529	782.5		
* Age-adjusted death rates per 100,000 population					

TABLE 4. North Carolina State Center for Health Statistics (NC SCHS). (2020). Causes of Death. [Data tables]. Available from https://schs.dph.ncdhhs.gov/data/.

Heart disease is the number one cause of death in the County, with deaths occurring at a greater rate than in the state. The age-adjusted rate of death by heart disease for years 2015-2019 is 171.4 per 100,000, which is 9.0% higher than the regional rate and 4.5% higher than the state rate (NC SCHS, 2020). However, while heart disease remains the top cause of death in the County, the death rate has decreased from 197.3 deaths per 100,000 population in 2016 to a rate of 171.4 deaths per 100,000 in 2019 (NC SCHS, 2021; Graham County DPH, 2018).

Death from heart disease is occuring at almost twice the rate for men as it is for women (214.0 deaths per 100,000 population and 113.7 deaths per 100,000, respectively) (NC SCHS, 2021). However, the rate of death from cancer was almost equal for men and women for the time period of 2015 to 2019. The age-adjusted rate of death from cancer for men was 165.1 per 100,000 population and 151.6 per 100,000 for women. While the death rate from cancer has been higher in Graham County than in the state or western region in past years, it was fairly similar for this time period (157.5 per 100,000 in Graham County, 157.3 per 100,000 in the region and 158.0 per 100,000 in the state) (NC SCHS, 2021). Breast cancer and lung cancer remain the most prevalent forms of cancer in Graham County, and remain a critical issue identified by community partners.

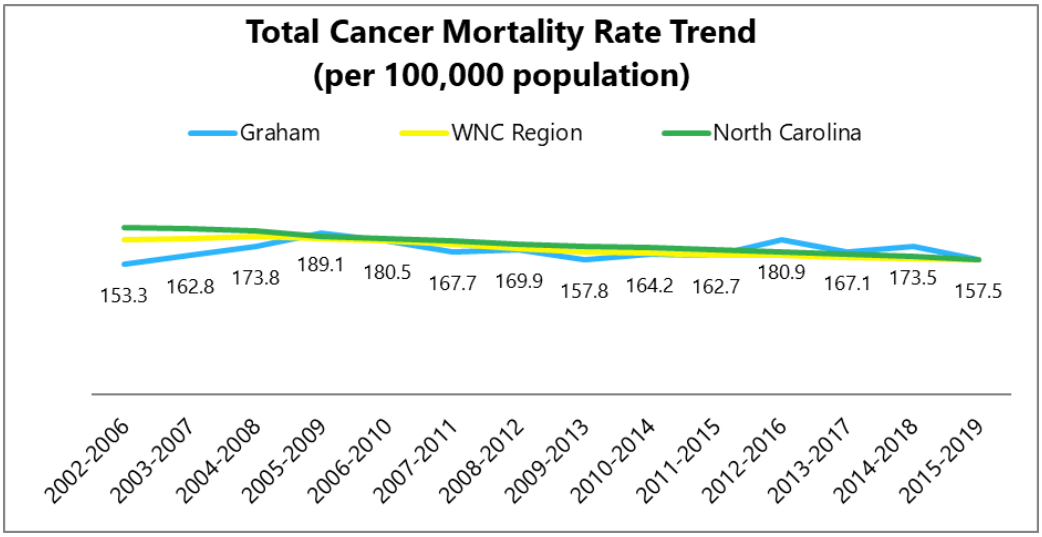


FIGURE 13. North Carolina State Center for Health Statistics (NC SCHS). (2021). Central Cancer Registry: NC Cancer Incidence Rates per 100,000 Population Age-Adjusted to the 2000 US Census. [Data tables]. Available from http://www.schs.state.nc.us/data/cancer/incidence_rates.htm.

Life expectancy is the average number of additional years that someone at a given age would be expected to live if current mortality conditions remained constant throughout their lifetime. The table below presents a fairly recent summary of life expectancy for Graham County and for WNC and NC as a whole. The data shows that life expectancy in Graham tends to be slightly lower than the region and the state, except for men. The overall life expectancy in Graham County is 77.0, slightly lower than that of the State and region (NC SCHS, 2021).

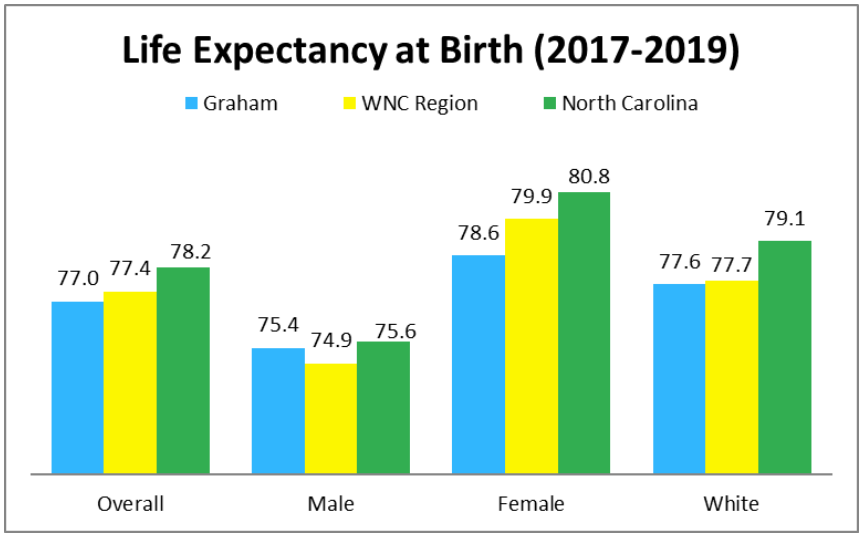


FIGURE 14. North Carolina State Center for Health Statistics (NC SCHS). (2021). County Life Expectancy at Birth: Vital Statistics. [Data tables]. Available from https://schs.dph.ncdhhs.gov/data/lifexpectancy/

Health Status & Behaviors

The Robert Wood Johnson Foundation, collaborating with the University of Wisconsin Population Health Institute, supports a project to develop health rankings for the counties in all 50 states. Each state's counties are ranked according to health outcomes and the multiple health factors that determine a county's health. Each county receives a summary rank for its health outcomes and health factors, and also for four different specific types of health factors: health behaviors, clinical care, social and economic factors, and the physical environment (Graham County DPH, 2018).

The following table represents Graham's ranking out of 100 counties for health outcomes and health factors in 2021 (1 being the "best" and 100 being "worst"). The rankings include deaths through 2019 and therefore do not consider deaths attributed to COVID-19 (County Health Rankings, 2021).

County Health Ranking (Out of 100)								
	Health Outcomes			Health Factors				
YEAR	Length of Life	Quality of Life	Overall Rank	Health Behaviors	Clinical Care	Social and Economic Factors	Physical Environment	Overall Rank
2021	70	63	65	72	92	76	11	77
2016	96	53	88	32	96	89	24	81

TABLE 5. County Health Rankings. (2021). Graham County Overview. Available from https://www.countyhealthrankings.org/app/north-carolina/2021/rankings/graham/county/outcomes/overall/snapshot

Graham County's overall rank for health outcomes is 65th out of 100, up from 88th in 2016. Rankings for length of life, clinical care, social and economic factors, and physical environment have all improved. However, the rankings for quality of life and health behaviors have decreased while the ranking for clinical care remains low. This signals that, while there has been improvement in both health outcomes

and health factors within Graham County, there is still work to be done to promote the health and well-being of the County's residents.

Maternal Health

Maternal and child health are both important factors in determining a county's overall health. The health of the mother during pregnancy impacts the health of the baby, and the well-being of both are important factors in the health of the next generation (Healthy People 2020, n.d.).

According to the NC State Center for Health Statistics in 2019, 8.2% of Graham County mothers had gestational diabetes while they were pregnant (NC SCHS, 2020). Gestational diabetes occurs when the level of sugar within the blood increases during pregnancy. This condition can lead to complications such as excessive birth weight, early (preterm) birth, breathing difficulties, and stillbirth (Mayo Clinic, 2020). Gestational diabetes also increases the risk of developing type 2 diabetes later in life and puts the mother at risk for high blood pressure and preeclampsia (Mayo Clinic, 2020).

Smoking while pregnant can lead to preterm delivery and low birth weight. Babies born to mothers who smoke while pregnant or who are exposed to secondhand smoke after birth may have weaker lungs and are more likely to die from sudden infant death syndrome (SIDS) than babies who are not exposed (Centers for Disease Control and Prevention, 2020). While the percentage of mothers who smoke during pregnancy has trended downwards over the past 5 years, there was a spike for Graham County mothers in 2019 (NC SCHS, 2021).

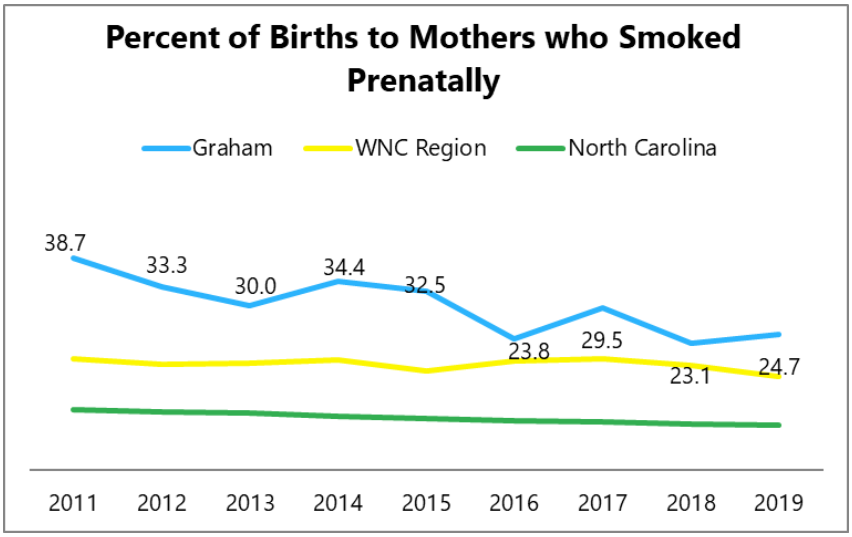


FIGURE 15. North Carolina State Center for Health Statistics (NC SCHS). (2021). North Carolina Vital Statistics Volume 1: Selected Vital Statistics. [Data tables]. Available from https://schs.dph.ncdhhs.gov/data/vital/volume1/2019/

Low birth weight is one indicator of poor maternal health and is a risk factor for other health outcomes, such as infection, trouble feeding and gaining weight, nervous system and digestive system problems, and SIDS (Cedars-Sinai, n.d.). As shown below, low birth weight trends for Graham County declined from 2014-2018 and were much lower in Graham County than both the state and region for the 2015-2019 time period (NC SCHS, 2021). However, there are health inequities by racial/ethnic identity. Seven and a half percent of Graham County mothers who identify as White gave birth to a child in the low-birth-weight category, while 33.3% of mothers who identify as Black gave birth to a child in the low birth weight category (NC SCHS, 2021).

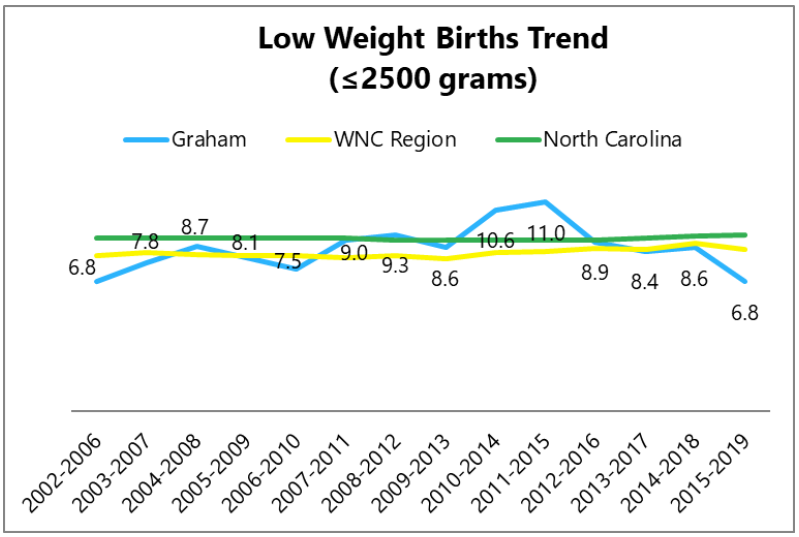


FIGURE 16. North Carolina State Center for Health Statistics (NC SCHS). (2021). County Health Data Book: North Carolina Live Births by County of Residence. [Data tables]. Available from https://schs.dph.ncdhhs.gov/data/databook/.

Prenatal care is important for the health of both the mother and the baby. Receiving prenatal care helps doctors identify health problems early and leads to better birth outcomes, as well (Office of Women's Health, 2019). The chart below shows that relatively similar proportions of Graham County mothers receive prenatal care in their first trimester as compared to mothers in the region. Mothers in Graham County, as well in the region, receive prenatal care in the first trimester at a greater proportion than North Carolina mothers as a whole (NC SCHS, 2021). A similar percentage of Graham County mothers who identify as White received prenatal care as compared to the State (80.5% and 74.2%, respectively). A greater percentage of Graham County mothers who identified as Hispanic received prenatal care than in the State as a whole (100% and 55.9%, respectively). However, none of the Graham County mothers who identify as African American received prenatal care, compared to 61.0% of North Carolina mothers who identify as African American (NC SCHS, 2021).

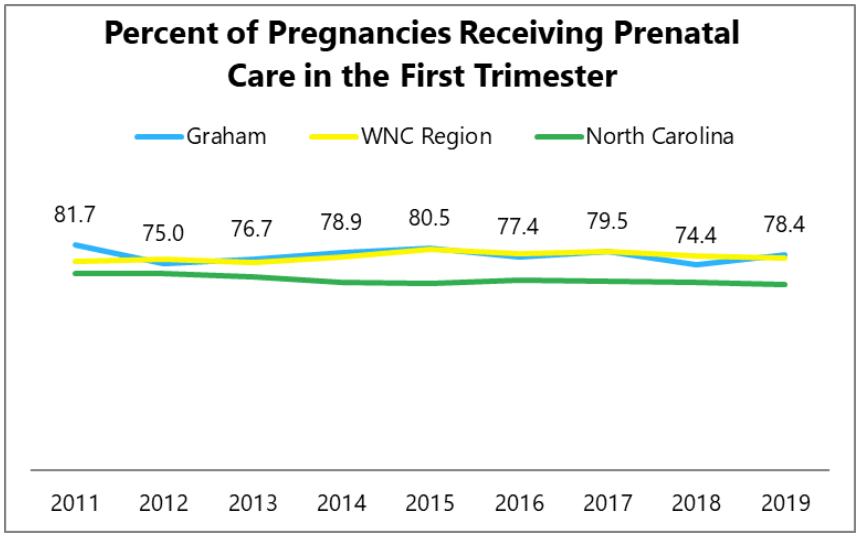


FIGURE 17. Citation: North Carolina State Center for Health Statistics (NC SCHS). (2021). BABYBOOK: County Resident Births by Month Prenatal Care Began. [Data tables]. Available from http://www.schs.state.nc.us/data/vital/babybook/2019.htm

Chronic Disease

According to the CDC, chronic diseases are conditions that last 1 year or more and require ongoing medical treatment or limit activities of daily living, or both (CDC, 2021). Examples of these conditions include heart disease, cancer, and diabetes - all of which occur commonly within Graham County.

Heart Disease

Diseases of the heart were the leading cause of death for Graham County for the 2015-2019 time period, with a rate of 171.4 deaths per 100,000 population (NC SCHS, 2020). Heart disease was also identified as a health priority by the Graham County prioritization team. The chart below shows that mortality for the County is relatively similar to that of the region and state; a decrease in mortality rate can also be seen.

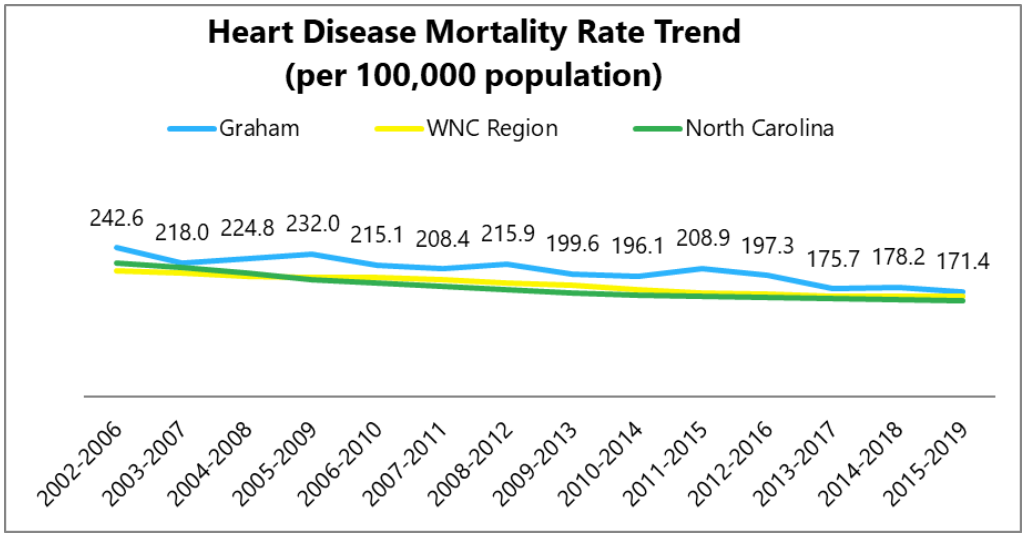


FIGURE 18. North Carolina State Center for Health Statistics (NC SCHS). (2021). Race-Specific and Sex-Specific Age-Adjusted Death Rates by County: County Health Data Book. [Data tables]. Available from https://schs.dph.ncdhhs.gov/data/.

However, there is a large gender disparity in heart disease mortality rates, with men being affected at much higher rates than women. This is not unique to Graham County; disproportionate mortality among men is a long-standing and widespread problem that remains unsolved. It may indicate that males are not seeking preventative medical care as often as females, or that males participate in higher risk lifestyles (smoking, drinking, poor diet, etc.) more than women do; there may be other factors at play as well (Gavarkovs et al., 2016).

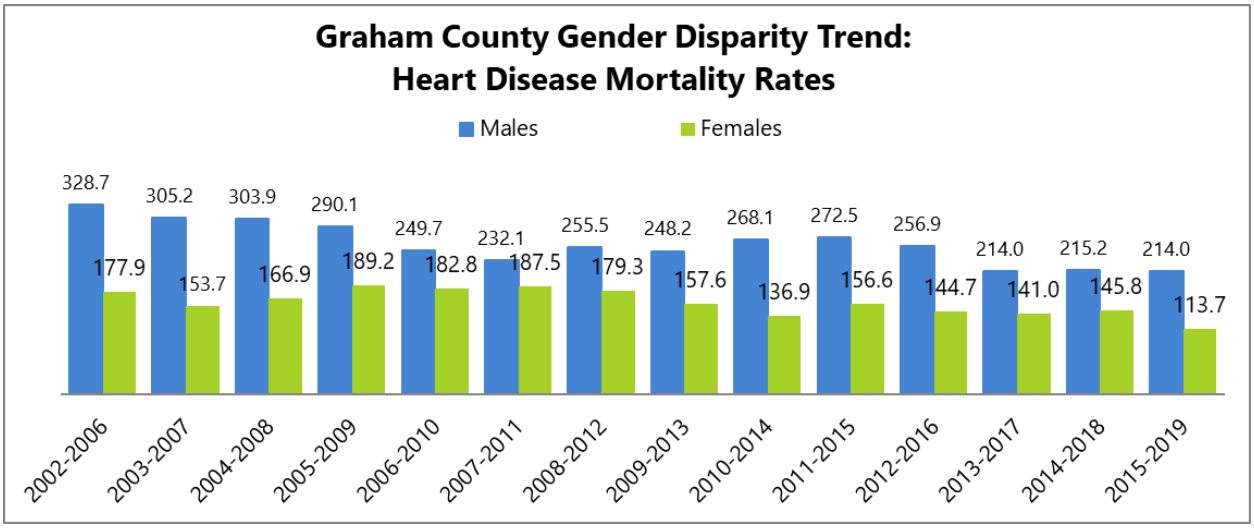


FIGURE 19. North Carolina State Center for Health Statistics (NC SCHS). (2021). Race-Specific and Sex-Specific Age-Adjusted Death Rates by County: County Health Data Book. [Data tables]. Available from https://schs.dph.ncdhhs.gov/data/.

Data from the 2021 WNC Healthy Impact Community Health Survey Data Workbook show that a greater percentage of Graham County residents reported having heart disease than all other locations surveyed. The data also shows that the percentage of respondents reporting heart disease increased in Graham County from 2018 to 2021, while other regions reported declines in prevalence of heart disease. While the prevalence of reported heart disease has increased, the table does show declines in the prevalence of residents reporting that they have been told they have high blood pressure or high cholesterol, two risk factors for heart disease (WNC Health Network, 2021).

Western North Carolina Healthy Impact Community Health Survey Results Heart Disease			
		2018	**2021**
% Heart Disease (Heart Attack, Angina, Coronary Disease)	**Graham**	**10.90%**	**11.90%**
	WNC	8.00%	7.60%
	North Carolina	n/a	6.80%
	United States	8.00%	6.10%
% Told Have High Blood Pressure (Ever)	**Graham**	**46.30%**	**41.50%**
	WNC	39.20%	37.20%
	North Carolina	35.20%	35.10%
	United States	37.00%	36.90%
% Told Have High Cholesterol (Ever)	**Graham**	**34.30%**	**28.70%**
	WNC	33.80%	28.70%
	United States	36.20%	32.70%

TABLE 6. WNC Health Network. (2021). 2021 WNC Healthy Impact Community Health Survey: Data Workbook. [Data set]. Available from https://www.wnchn.org/wnc-data/regional-data/.

Cancer

Cancer was the second leading cause of death for Graham County in the 2015-2019 time period, with a rate of 157.5 deaths per 100,000 population (NC SCHS, 2020). The impact of cancer on the County is heartbreaking; ultimately, cancer was not chosen as a key priority due to its unavoidability and the difficulty of addressing it at a county level.

Diabetes

Diabetes ranked as the 6th leading cause of death for Graham County in the 2015-2019 time period, with a rate of 31.4 deaths per 100,000 population (NC SCHS, 2020). While diabetes is a major contributor to mortality across the county, the chart below shows that the prevalence of diabetes within Graham County is lower than that of the state and region (CDC, 2021).

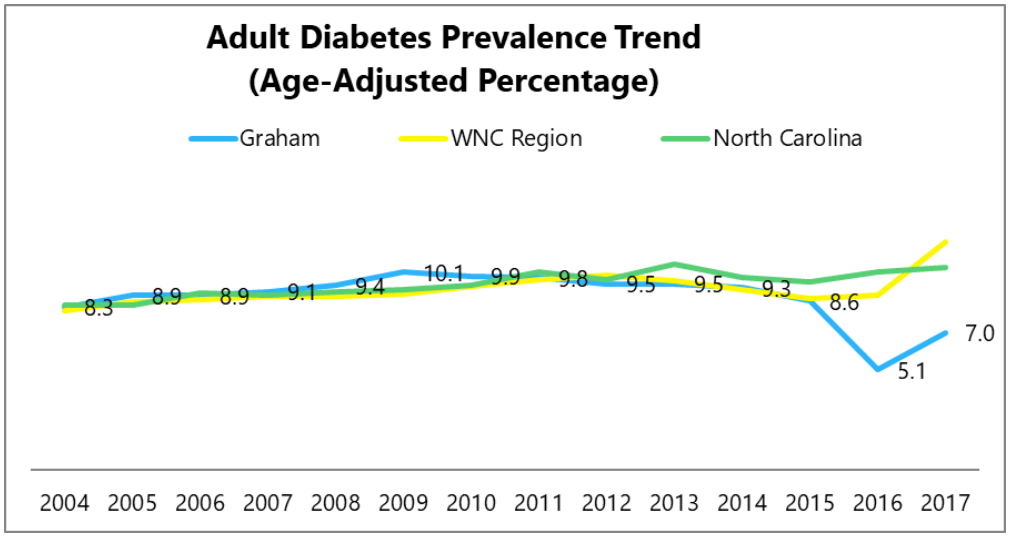


FIGURE 20. Centers for Disease Control and Prevention (CDC). (2021). National Diabetes Surveillance System: County Level Data, Diagnosed Diabetes Prevalences. [Data tables]. Available from http://www.cdc.gov/diabetes/data/index.html.

Pre-diabetes is a risk factor for developing diabetes, and if identified early enough, can be reversed with lifestyle behavior changes. In 2021, 3.70% of survey respondents claimed to be pre-diabetic in Graham County, which has declined since 2015 (13.3%) and has fallen below the prevalence of the region (4.60% in 2018), which has also seen declines (WNC Health Network , 2021).

Diabetes data is not broken down by race for Graham County; however, the CDC reports that American Indians and Alaskan Natives are more likely to develop diabetes than any other racial group in the US (Centers for Disease Control and Prevention, 2017). As a result, we've included this group as an "at-risk population" which we will discuss in this context. Diabetes is the cause of kidney failure two-thirds of the time; however, kidney failure from diabetes has dropped by 54% in AI/AN between 1996 and 2013 (CDC, 2017). Unfortunately, the rate of death from kidney disease in Graham County has gone up over the last decade with a rate of 18.3 per 100,000 in 2015-2019 (NC SCHS, 2021). AI/AN that live in Graham County benefit from the health services provided by the Eastern Band of Cherokee Indians, as well as through the county and state services offered. All enrolled tribal members and members of other tribes are eligible to receive services at the Cherokee Indian Hospital. While there are many efforts on behalf of the tribe to combat diabetes, Graham County will consider the unique needs of the AI/AN population residing in the County. Access to healthier foods, physical activity, and healthcare services is even more

critical for this higher risk population. The Tribe began participating in the CDC's Diabetes Prevention Program (DPP) in 2016 (W. Pertet, DPP Coordinator, personal communication, February 28, 2019). While COVID-19 caused these classes to pause, they may resume this fall (A. Innis, Cherokee Choices DPP program lead, personal communication, 2022).

Injuries and Violence

Unintentional Motor Vehicle Injuries ranked as the tenth leading cause of death for Graham County for the 2015-2019 time period, with a rate of 17.9 deaths per 100,000 population (NC SCHS, 2020). There were 132 reportable traffic accidents in 2020 with 73 associated reports of injury (NC Department of Transportation, 2021). 7 of these crashes were alcohol-related while 28 of the crashes involved a motorcycle (NC DOT, 2021).

All Other Unintentional Injuries ranked as the 4th leading cause of death for the 2015-2019 time period, with a rate of 39.3 deaths per 100,000 population (NC SCHS, 2020). Unintentional injuries are those that result from an accident and are not caused with intent. These injuries include unintentional poisoning (drug overdose), unintentional motor vehicle traffic (discussed above), unintentional drowning, and unintentional falls (Norton et al., 2006). Graham County saw a slight increase in the unintentional injury mortality rate during the 2015-2019 time period, following a large decrease from the 2012-2016 time period. Graham County had 5 reported deaths related to unintentional poisoning in the 2015-2019 time period (NC SCHS, 2021) and 1 death that can be attributed to unintentional opioid-related overdose in 2019 (NC Opioid Action Plan Dashboard, 2021).

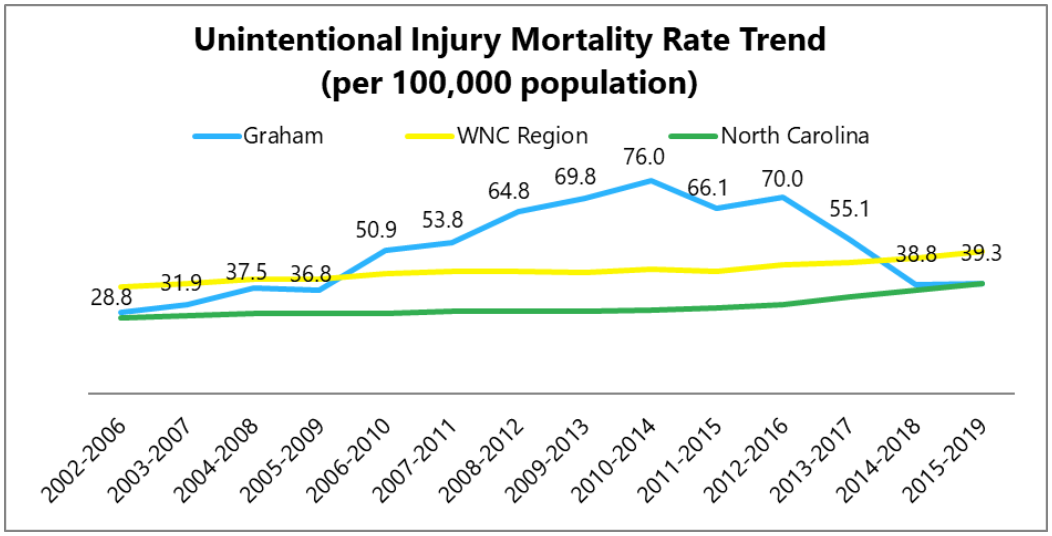


FIGURE 21. Citation: North Carolina State Center for Health Statistics (NC SCHS). (2021). Race-Specific and Sex-Specific Age-Adjusted Death Rates by County: County Health Data Book. [Data tables]. Available from https://schs.dph.ncdhhs.gov/data/.

Thirty-three percent of survey respondents over 65 years old in 2015 reported that they had fallen in the past year (this question was not asked in the 2021 survey) (WNC Health Network, 2021). While the NC SCHS reports only one unintentional fall-related death for individuals ages 65 and over in Graham County in 2019, there were 1,499 for this same age group across the State (NC SCHS, 2021). As this age-group continues to grow and account for an increasingly large proportion of the population, resources and outreach efforts to prevent falls will be critical.

Substance Use and Mental Health

Substance Use and Mental Health were recognized as top priorities by the prioritization committee. Rather than address these community health needs individually, the committee suggested addressing them together in a collective and focused approach.

Suicide ranked as the seventh most common leading cause of death for Graham County for the 2015-2019 time period, with a rate of 24.8 deaths per 100,000 population (NC SCHS, 2021).

The number of Graham County residents served by a state psychiatric hospital has remained relatively consistent since 2014-2015, with 1 to 2 residents served each year and 1 being served in the 2019-2020 Fiscal Year (North Carolina Department of Health and Human Services, 2021). In 2019-2020, there were 436 individuals served in area mental health programs, down from 527 individuals served in the 2016-2017 time period (NC DHHS, 2021).

The results of the WNC Healthy Impact Community Health Survey show reports of dissatisfaction with life, inability to obtain needed mental health services, and experiencing more than 7 days of poor mental health in the past month have all increased in recent years. This is occurring as reports of getting needed social and emotional support have decreased (WNC Health Network, 2021). Researchers from the Kaiser Family Foundation have reported a larger proportion of US adults who report symptoms of anxiety or depressive order as compared to previous years. Additionally, the Kaiser Family Foundation polls have shown increased reports of negative impacts on individual mental health as a result of the COVID-19 pandemic and related stress (Panchal et al., 2021).

Western North Carolina Healthy Impact Community Health Survey Results Mental Health			
	2015	**2018**	**2021**
% "Dissatisfied" and "Very Dissatisfied" With Life	5.80%	9.10%	9.60%
% Unable to Obtain Needed Mental Health Services in Past Year	6.20%	12.20%	19.20%
% “Always/Usually” Get Needed Social/Emotional Support	80.60%	84.90%	70.90%
% >7 Days of Poor Mental Health/Past Month	16.50%	16.40%	22.20%
% Have Considered Suicide in the Past Year	n/a	n/a	3.80%
% Currently Taking Medical or Receiving Treatment for Mental Health	n/a	n/a	18.00%
% Able to Stay Hopeful in Difficult Times	n/a	n/a	89.40%

TABLE 7. WNC Health Network. (2021). 2021 WNC Healthy Impact Community Health Survey: Data Workbook. [Data set]. Available from https://www.wnchn.org/wnc-data/regional-data/.

Data from the 2021 Community Health Survey showed small changes related to alcohol and substance use behaviors. The percentage of current drinkers has remained relatively consistent for Graham County residents and has remained lower than the percentages for the State (47.90% in 2021) and region

(51.90% in 2021) (WNC Health Network, 2021). However, the percentage of binge drinkers has more than doubled (an increase of approximately 116%) since 2018 and the percentage of excessive drinkers has also seen an increase. Self-reported opiate/opioid use increased slightly from 2018. It is important to note that more than half of respondents reported that their life had been negatively affected by substance use, whether this was personal use or use by someone else (WNC Health Network, 2021).

Western North Carolina Healthy Impact Community Health Survey Results Substance Use			
	2015	**2018**	**2021**
% Current Drinker	32.10%	30.40%	30.80%
% Binge Drinker (Single Occasion - 5+ Drinks Men, 4+ Women)	14.40%	4.90%	10.60%
% Excessive Drinkers	16.90%	7.80%	11.40%
% Used Opiates/Opioids in the Past Year, With or Without a Prescription	n/a	18.10%	19.80%
% Life Has Been Negatively Affected by Substance Abuse*	n/a	46.20%	52.00%
* (by Self or Someone Else) - includes "Great Deal", "Somewhat" and "Little" Responses			

TABLE 8. WNC Health Network. (2021). 2021 WNC Healthy Impact Community Health Survey: Data Workbook. [Data set]. Available from https://www.wnchn.org/wnc-data/regional-data/.

Clinical Care & Access

Access to clinical care and health services is vital for individual and community health. Access to care helps to prevent disease and disability, detect and treat illnesses, increase quality of life, and reduce the likelihood of premature (early) death (Health People 2020, n.d.). Access to care is influenced by availability of health professionals, as well as having health insurance (Healthy People 2020, n.d.).

Health Professionals

The table below represents the ratio of the number of active health professionals per 10,000 population in Graham County versus the regional and state ratios in 2019. The data shows that Graham County has much lower ratios of providers to population than the region and the State.

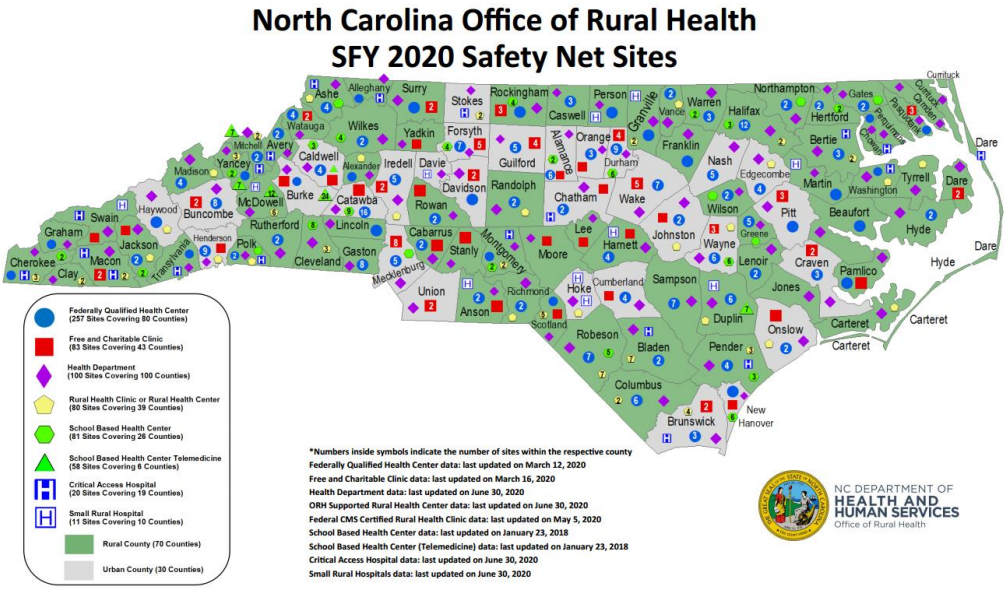
Number of Active Health Professionals per 10,000 Population Ratios			
	Graham County	**WNC Regional A.M.***	**North Carolina**
Physicians	**4.6**	14.97	24.3
Primary Care Physicians**	**4.6**	6.27	7.06
Dentists	**2.3**	3.45	5.18
Registered Nurses	**32.23**	75.5	98.9
Physicians Assistants	**1.15**	4.74	6.59
Nurse Practitioners	**4.6**	7.02	8.27

* A.M. = Arithmetic Mean
** Primary Care Physicians are those who report their primary specialty as family practice, general practice, internal medicine, pediatrics, or obstetrics/gynecology

TABLE 9. Cecil G. Sheps Center for Health Services Research. (2021). North Carolina Health Professions Data System. [Data tables]. Available from https://nchealthworkforce.unc.edu/supply/

Licensed Facilities

The map below shows the "Safety Net Sites" located throughout the state in 2020. Graham County offers safety net services through sites at the Graham County Department of Health and the Tallulah Community Health Center (a Federally Qualified Health Center). The Erlanger School-Based Clinic Graham County at Robbinsville Elementary School was recently opened and is not reflected in the map below (Graham County DPH, 2022). Residents of Graham County can also access Erlanger Western Community Hospital in Cherokee County and Swain County Hospital in Bryson City (Map: NC DHHS, 2020) .



Graham County has one licensed nursing home in Robbinsville with a maximum capacity of 80 skilled nursing facility (SNF) beds and 23 acute care home (ACH) beds (NC DHHS, 2020). There are 12 total beds at licensed mental health facilities in Graham County (NC DHHS, 2020).

Insured and Uninsured Population + Medicaid

According to the community survey, 18.3% of Graham County residents are uninsured, a decrease from 28.9% in 2015, yet still higher than the regional average of 14.5% (WNC Health Network, 2021). Thirty-two percent of Graham's population is eligible for Medicaid as of 2020. The table below shows that this trend has been increasing over the past 5 years and that a much larger proportion of Graham County residents are eligible for Medicaid, as compared to the region (24.6% for SFY 2020) (NC Department of Health and Human Services, 2021).

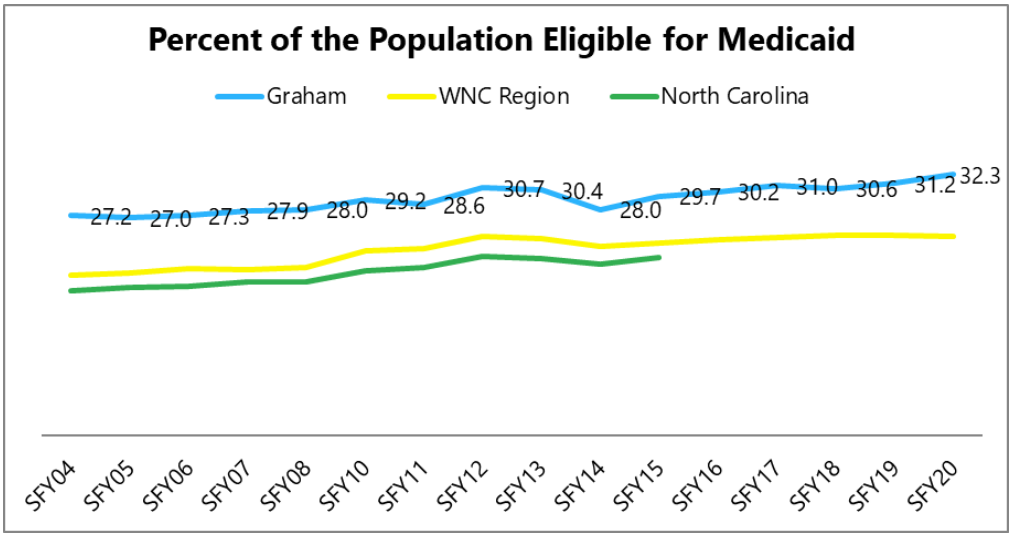


FIGURE 22. NC Department of Health and Human Services. (2021). Annual Report: N.C. Medicaid Eligibility and Program Expenditures for Which the County is Responsible for Its Computable Share. [Data tables]. Available from https://dma.ncdhhs.gov/reports/annual-reports-and-tables.

The main type of health insurance coverage for Graham residents under 19 is Medicaid or Means-Tested Public Coverage Only (52.7%). While this is consistent with both the State and region, there is a higher percentage of residents under age 19 with this type of coverage in Graham County than in the State as a whole (44.9%) and the region (44.9%), as well (WNCHN, 2021; U.S. Census Bureau, 2021). The main type of health insurance coverage for Graham residents between the ages of 19 and 64 is Employer-based Health Insurance Only, consistent with the findings for the region and State (U.S. Census Bureau, 2021). The main type of health insurance coverage for Graham residents between the ages of 35 and 64 is Employer-based Health Insurance Only. A smaller proportion of Graham residents (40.6%) rely on this type of insurance than residents across the region as a whole (50.2%) and the State (56.6%). In contrast, a greater proportion of Graham residents either have no health insurance or are enrolled in Medicaid/Means-Tested Public Coverage Only than residents in the region as a whole or the State (U.S. Census Bureau, 2021). Graham residents over the age of 65 rely primarily on Medicare alone as their source of insurance (U.S. Census Bureau, 2021).

Top Three Types of Health Insurance Coverage by Age			
Under 19	**Medicaid/Means-Tested Public Coverage Only**	**Employer-based Health Insurance Only**	**No Health Insurance**
	52.7%	30.8%	12.0%
19-34	**Employer-based Health Insurance Only**	**No Health Insurance**	**Medicaid/Means-Tested Public Coverage Only**
	49.8%	33.9%	11.7%
35-64	**Employer-based Health Insurance Only**	**No Health Insurance**	**Two or More Types of Health Insurance Coverage**
	40.6%	21.3%	14.4%
Over 65	**Two or More Types of Health Insurance Coverage**	**Medicare Only**	
	24.7%	75.3%	

TABLE 10. US Census Bureau. (2021). Type of Health Insurance by Age. [Data tables]. Available from https://data.census.gov/

Healthcare Access

Access to healthcare is not always guaranteed. The 2021 Community Health Survey results showed 12.1% of Graham County respondents needed care but were not able to get it at least once in the past year, compared to 10.6% for the region (WNC Health Network, 2021). The results of the Survey showed that 43.2% of Graham County residents would be extremely or very likely to use telemedicine for future routine care (WNC Health Network, 2021).

Health Inequities

Those living in poverty are at risk for greater health disparities compared to those not living in poverty. According to five-year estimates from the American Community Survey, Graham County has a higher rate of poverty than the region and the state; the survey showed that 17.1% of Graham County residents were living in poverty in the 2015-2019 time period, compared to 15.0% of Western North Carolina residents and 14.7% of North Carolina residents (U.S. Census Bureau, 2021). It is also important to note the income disparities across racial and ethnic groups: 16.6% of residents who identify as White, 100% of residents who identify as Black or African American, 10.4% of residents who identify as American Indian or Alaska Native residents, and 57.4% of residents who identify as Hispanic, or Latino are living below the poverty level (U.S. Census Bureau, 2021). Low-income families are at risk of not being able to receive medical care. Due to low access to health care providers, residents often have to travel out of the County to see any type of specialist. Those living in poverty, those uninsured, and older adults run up against the burden of accessing care either for financial reasons or other socio-economic reasons like lack of transportation or social support.

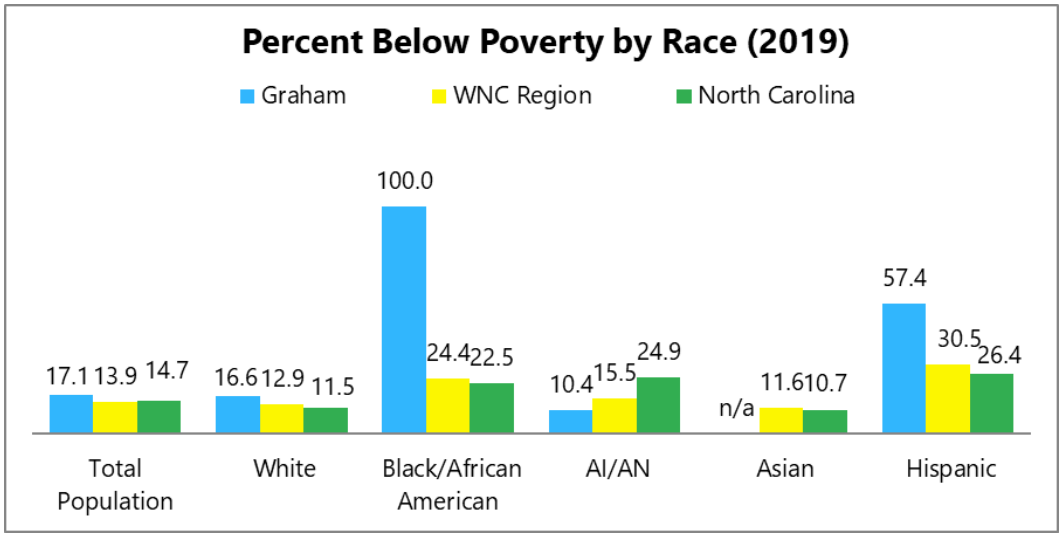


FIGURE 23. Citation: U.S. Census Bureau. (2021). Poverty Status in the Past 12 Months: 2015-2019 ACS 5-Year Estimates. [Data tables]. Available from http://census.data.gov

As of January 2021, 1,365 residents were recipients of Food Nutrition Services (SNAP/EBT); 488 of those individuals were under the age of 18 years old (UNC-CH Jordan Institute, 2021). This is often an indicator of food insecurity, which puts this population at greater risk for poor health. According to the WNC Healthy Impact Community Health Survey, 22.20% respondents were classified as food insecure (represents those who ran out of food at least once in the past year and/or worried about running out of food in the past year) (WNC Health Network, 2021). Food insecurity is linked to an increased risk of chronic disease and is of particular concern for pregnant women, infants and children.

Chapter 5 – Physical Environment

Physical environment encompasses where we live, work, learn, and play (County Health Rankings, 2022). Access to clean air, safe water, stable and affordable housing, and healthy food all contributes to good health. If access to these factors is limited, so is our ability to live a long and healthy life (County Health Rankings, 2022).

Air & Water Quality

"Clean air and safe water are prerequisites for health. Poor air or water quality can be particularly detrimental to vulnerable populations such as the very young, the elderly, and those with chronic health conditions." (County Health Rankings, 2021).

Air Quality Index (AQI)

Nationally, outdoor air quality monitoring is the responsibility of the Environmental Protection Agency (EPA); most of the following information and data originate with that agency. In NC, the agency responsible for monitoring air quality is the Division of Air Quality (DAQ) in the NC Department of Environment and Natural Resources (NC DENR).

The EPA categorizes outdoor air pollutants as "criteria air pollutants" (CAPs) and "hazardous air pollutants" (HAPs). Criteria air pollutants (CAPS), which are covered in this report, are six chemicals that can injure human health, harm the environment, or cause property damage: carbon monoxide, lead, nitrogen oxides, particulate matter, ozone, and sulfur dioxide. The EPA has established National Ambient Air Quality Standards (NAAQS) that define the maximum legally allowable concentration for each CAP, above which human health may suffer adverse effects (US Environmental Protection Agency, 2021).

The impact of CAPs in the environment is described on the basis of emissions, exposure, and health risks. A useful measure that combines these three parameters is the Air Quality Index (AQI).

The AQI is an information tool to advise the public. The AQI describes the general health effects associated with different pollution levels, and public AQI alerts (often heard as part of local weather reports) include precautionary steps that may be necessary for certain segments of the population when air pollution levels rise into the unhealthy range. The AQI measures concentrations of five of the six criteria air pollutants and converts the measures to a number on a scale of 0-500, with 100 representing the NAAQS standard. An AQI level in excess of 100 on a given day means that a pollutant is in the unhealthy range that day; an AQI level at or below 100 means a pollutant is in the "satisfactory" range (US EPA, 2021). The following table defines the AQI levels.

General Health Effects and Cautionary Statements, Air Quality Index			
Air Quality Index (AQI) Values	**Air Quality Condition**	**Color Code**	**Meaning**
0-50	Good	Green	Air quality is satisfactory; little to no risk from air pollution.
51-100	Moderate	Yellow	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
101-150	Unhealthy for Sensitive Groups	Orange	Members of sensitive groups* may experience health effects. The general public is not likely to be affected.
151 to 200	Unhealthy	Red	Everyone may begin to experience health effects; members of sensitive groups* may experience more serious health effects.
201 to 300	Very Unhealthy	Purple	Health alert: everyone may experience more serious health effects.
301 to 500	Hazardous	Maroon	Health warnings of emergency conditions. The entire population is more likely to be affected.
*"Sensitive groups" include people with lung disease, older adults, and children.			

TABLE 11. U.S. Environmental Protection Agency. (2021). Air Data Basic Information. Retrievable from https://www.epa.gov/outdoor-air-quality-data/air-data-basic-information.; Graham County Department of Public Health, 2018.

Data in table below shows that, of days reported with an AQI, in Graham County there were no days rated "very unhealthy", "unhealthy", or "unhealthy for sensitive groups" in 2020.

	Number of Days When Air Quality Was:				
No. Days with AQI	**Good**	**Moderate**	**Unhealthy for Sensitive Groups**	**Unhealthy**	**Very Unhealthy**
238	223	15	–	–	–

TABLE 12. United States Environmental Protection Agency. (2020). Air Quality Index Reports. [Data tables]. Available from https://www.epa.gov/outdoor-air-quality-data.

Radon

Western NC has historically had the highest radon levels in the state. In 2018, Graham County reported a current average indoor radon level of 5.6, 37% higher than the regional mean and 4.3 times the average national level (Graham County DPH, 2018). A screening level over 4 pCi/L is the EPA's recommended action level for radon exposure. Radon is the number one cause of lung cancer among non-smokers, according to EPA estimates. Overall, radon is the second leading cause of lung cancer. People who smoke have an even higher risk of lung cancer from radon exposure than people who don't smoke. (Graham County DPH, 2015).

Community Water Systems (proportion of population served by CWSs)

The source from which the public gets its drinking water is a health issue of considerable importance. Water from all municipal and most community water systems is treated to remove harmful microbes and many polluting chemicals and is generally considered to be "safe" from the standpoint of public health because it is subject to required water quality standards. Municipal drinking water systems are those operated and maintained by local governmental units, usually at the city/town or county level. Community water systems are systems that serve at least 15 service connections or regularly serve 25 residents for at least 60 days in a year (US EPA, 2021). This category includes municipalities, but also subdivisions and mobile home parks. As of April 2020, there were 4,555 Graham County residents, or about 53.5% of the population, being served by municipal and community water systems. This is about four percent less than the region (US EPA, 2021).

Secondhand Smoke Exposure

Just over 19% of WNC Healthy Impact Community Health Survey respondents reported that they breathed smoke from someone else using tobacco while at work. This is the highest percentage expressed across the region; only 9.1% of respondents reporting exposure in the region as a whole (WNC Health Network, 2021).

Access to Healthy Food & Places

Food security, as defined by the United Nations' Committee on World Food Security, exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.

Food Insecurity

Food insecurity was measured in the WNC Healthy Impact Community Health Survey by assessing those who ran out of food at least once in the past year and/or worried about running out of food in the past year. Twenty-two percent of Graham County respondents reported that they had experienced one or both of these scenarios, more than 19.0% of Western North Carolina respondents in total (WNC Health Network, 2021). Respondents to the Key Informant Survey also discussed access to affordable healthy foods, saying that options for healthy food are limited and that the costs of healthy food also prohibit community members from eating a healthy range of foods (WNCHN - Key Informant Survey, 2021).

Access & Locations

Graham County has one farmer's market, operated on Knight Street on Saturdays from 9am to 1pm. The 2022 market will operate from May 14 to November 19 (ASAP, 2022). Two vendors, the Produce Market and Country Store, accept SNAP/EBT.

Graham County is home to one grocery store. Grocery stores include businesses such as supermarkets and smaller grocery stores that primarily sell food - including canned and frozen items; fresh produce; and fresh and prepared meats, fish, and poultry. Convenience stores and larger retailers, like supercenters and warehouse club stores, are not counted in this data (NAICS Association, 2018). About three percent of residents have been identified as having low access to a store due to not having a car and living over one mile from a store (U.S. Department of Agriculture Economic Research Services, 2021). According to the community survey, 22.2% respondents were classified as food insecure (those that said they ran out of food at least once in the past year and/or worried about running out of food in the past year) (WNC Health Network, 2021).

The number of fast-food restaurants far exceeds the number of grocery stores with six fast food

restaurants in the County as of 2016 (0.70 per 1,000 compared to 0.12 per 1,000 for grocery store ratios). This is a 50% increase since 2011 (USDA Economic Research Services, 2021).

Built Environment

Graham County has several projects underway to improve the walkability of downtown Robbinsville. There are way-finding signs being erected, as well as Wi-Fi for visitors to be able to access the internet while visiting downtown. There is one Community Park, tennis courts, basketball courts, and a county pool. Several fitness trails exist throughout the County. The school has a walking trail, which is paved, and accessible to the public outside of school hours.

Chapter 6- Health Resources

Health Resources

Process

The existing Graham County Community Resource Assistance Guide, available on the Graham County Department of Public Health website, is a product of the North Carolina Division of Workforce Solutions. This guide lists several community organizations that can provide assistance with clothing and childcare, and numerous other services. While the guide has not been recently updated, it is an upcoming priority.

Findings

The health-related services available in Graham County are scarce. Graham County is home to an urgent care, a full-time primary care Federally Qualified Health Center (FQHC), and the health department provides both state mandated services, and primary care. However, there is no hospital, or specialty care services. The closest hospitals are Swain County Hospital in Bryson City and Erlanger Western Carolina Hospital in Murphy. There are no wellness resources (such as a gym or wellness center), and limited access to mental health resources through Appalachian Community Services. The Eastern Band of Cherokee Indians (ECBI) has a variety of services available to enrolled members only. For a complete list of health services in Graham County, see the Graham County Community Resource Assistance Guide.

Respondents to the Key Informant Survey mentioned several community resources. The number of multigenerational families living in the county were listed as a strength for creating strong family support and ties within the community. Health resources, like the mental health support provided by the Tallulah Community Health Center (an FQHC), the presence of an urgent care center and caring providers, were also mentioned. Key informants also shared the Graham County transit and EBCI transit programs as strengths, along with the presence of hiking trails and recreational activities for children (WNC Health Network - Key Informant Survey, 2021).

Resource Gaps

Respondents to the Key Informant Survey mentioned several resource gaps in their comments. Access to healthy foods and health care were both concerns. The cost of purchasing healthy foods and the lack of locations to purchase them were mentioned as challenges to health. Alcohol and drug use within the county was also discussed, along with limited mental health providers and mental health stigma. The lack of affordable healthcare options within the county was also mentioned, along with the distances necessary to reach a hospital, specialists, dialysis, or therapy. Employment and education were also discussed as areas for growth. Several respondents commented on limited employment opportunities, especially in the middle to high income categories, and a lack of employers that provide benefits and

health insurance to employees. The lack of a fitness center and accessible physical activity options were also discussed, as was a lack of family housing options and readily available emergency housing (WNC Health Network - Key Informant Survey, 2021).

Chapter 7 – Identification of Health Priorities

Health Priority Identification

Process

The process of identifying the list of health priorities to be used in the CHA health priority selection was completed by health department staff. Input from MountainWise and WNC Healthy Impact was also taken under advisement. The staff had a working knowledge of the WNC Healthy Impact data workbook, and two staff members participated in the community focus groups. The selection of the initial seven health priorities was based on the morbidity and mortality data from the workbook, and the feedback received from community leaders, citizens, and focus groups. Consideration was also given related to feasibility and current funding movements.

Every three years we pause our work to improve community health so that we may step back and take a fresh look at all of the current data from our county that reflects the health of our community. We then use this information to help us assess how well we're doing, and what actions we need to take moving forward. Beginning in August 2021, our team spent time understanding the data and uncovering what issues were affecting the most people in our community. We also interviewed community leaders to find out what they're most concerned about. To identify the significant health issues in our community, our key partners (see a full list in the Executive Summary) reviewed data and discussed the facts and circumstances of our community.

We used the following criteria to identify significant health issues:

- Data is related to past health priorities
- Data reflects a concerning trend related to size or severity
- Significant disparities exist
- Issue surfaced as a topic of high community concern
- County data deviates notably from the region, state or benchmark

Once our team made sense of the data, we presented key health issues to a wide range of partners and community members. The participants used the information we presented to score each issue, and then vote for their top areas of concern. They considered the severity of the issue, the relevancy of the issue, and the feasibility in improving the issue.
This process, often called health issue prioritization, is an opportunity for various community stakeholders, such as the school system, DSS, FQHC, GREAT, the local pharmacy, and county administration to agree on which health issues and results we can all contribute to, which increases the likelihood that we'll make a difference in the lives of people in our community.

Identified Issues

During the above process, the CHA team identified the following health issues or indicators:

- ***Mental Health:*** Suicide is the seventh leading cause of death with depression/anxiety/stress identified as a critical issue to address.
- ***Substance Abuse:*** Unintentional injury is the fourth leading cause of death in the County and a leading cause of death for individuals ages 20-39. This was also identified as a critical issue to address among surveyed participants.
- ***Cancer:*** As the second leading cause of death, this was selected; type not considered.
- ***Heart Disease:*** As the leading cause of death for the County, regardless of age, this was selected.
- ***Obesity:*** Obesity was identified as an issue due to its link to heart disease, mental health, and other chronic diseases, along with the high percentage of the community who fall in the Obesity and Obese categories.
- ***Food insecurity:*** Identified as an issue due to it being highlighted as a growing issue due to Covid-19.
- ***Communicable Disease:*** Identified as an issue due to several outbreaks of Hepatitis A, and to bring awareness of STIs.

Priority Health Issue Identification

Process

During our group process, the following criteria were applied to the issues listed above to select priority health issues of focus for our community over the next three years:

- Criteria 1 – Relevant – How important is this issue? *(Size of the problem; Severity of problem; Focus on equity; Aligned with HNC 2030; Urgency to solve problem; Linked to other important issues)*
- Criteria 2 – Impactful – What will we get out of addressing this issue? *(Availability of solutions/proven strategies; Builds on or enhances current work; Significant consequences of not addressing issue now)*
- Criteria 3 – Feasible – Can we adequately address this issue? *(Availability of resources (staff, community partners, time, money, equipment) to address the issue; Political capacity/will; Community/social acceptability; Appropriate socio-culturally; Can identify easy, short-term wins)*

Participants used a modified Hanlon method to rate the priorities using the criteria listed above. Then dot-voting techniques were used to narrow to the top 2 priority health issues.

Identified Priorities

The following priority health issues are the final community-wide priorities for our county that were selected through the process described above:

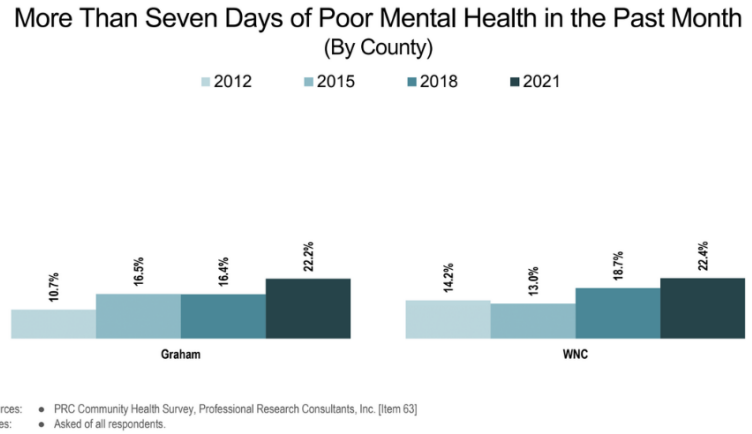
- **Mental Health and Substance Use** – our team chose to focus on these concerns together as one priority due to the fact that they often go hand-in-hand. If we can address and improve mental health outcomes, then those living with a substance use disorder can also benefit. If we can improve one issue, the other will improve, as well.
- **Obesity and Heart Disease** – we chose to focus on these concerns as one priority due to their related nature. Obesity contributes to heart disease and if we can address obesity, we can improve outcomes for heart disease, as well.

MENTAL HEALTH

Community Health Assessment-Priority Setting Data Summary

Mental Health rates are increasing across Graham County and WNC, and this issue is of high concern in the Online Key Informant Survey of community leaders and in our school focus group.

THE NUMBERS



Sources: • PRC Community Health Survey, Professional Research Consultants, Inc. [Item 63]
Notes: • Asked of all respondents.

WHAT DOES THIS MEAN FOR GRAHAM?

- Percent of adults in Graham who report more than seven days of poor mental health in the past month has increased and is almost even with that of WNC.
- From WNC Healthy Impact Community Health Survey:
  - **22.2%** report experiencing poor mental health, increase from 16.4% in 2018
  - **9.6%** report being dissatisfied with life, increase from 9.1% in 2018

Revised Sept. 2021

Tool adapted by WNC Health Network from Buncombe County CHIP data team

MENTAL HEALTH

WHAT'S HELPING?

- Having access to mental health support at our FQHC.
- ACEs training for school employees and other county employees.
- School adding the Mental Health Liaison position for all the schools.
- Addition of the school based health center.

WHAT'S HURTING?

- There is not substantial healthcare in Graham County.
- Lack of resources (i.e. broadband, transportation, affordability, etc).
- No face to face therapy, "Telehealth visits are no good for children".

WHAT ELSE DO WE KNOW?

- **From WNC Healthy Impact Community Health Survey**
  - **19.2%** report they did not get Mental Health care or Counseling that was needed in the past year
  - **70.9%** report "always" or "usually" got needed social/emotional support when needed, down from 84.9% in 2018.
  - **18.0%** report currently taking medication or receiving treatment for Mental Health.

CURRENT ACTION

- School Based Health Center
- School Mental Health Liaison and Crisis Team
- Services provided at local FQHC
- ACEs training for school employees and county employees

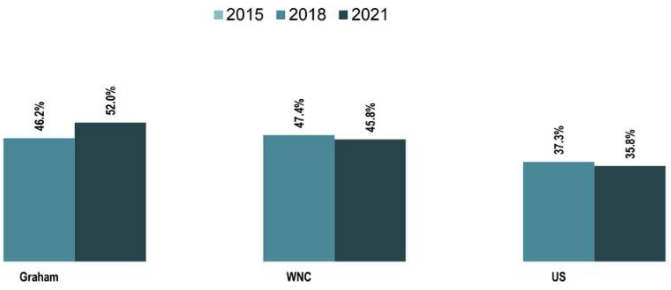
SUBSTANCE ABUSE

Community Health Assessment-Priority Setting Data Summary

Substance Abuse was an issue of high concern identified in the Online Key Informant Survey of community leaders and the school focus groups.

THE NUMBERS

Life Has Been Negatively Affected
by Substance Abuse (by Self or Someone Else)
(By County, 2021)



Sources:
- PRC Community Health Survey, Professional Research Consultants, Inc. [Item 27]
- PRC National Health Survey, Professional Research Consultants, Inc.

Notes:
- Asked of all respondents.

WHAT DOES THIS MEAN FOR GRAHAM?

- **52%** of adults report their life has been negatively affected by Substance Use (by self or someone else).
- **57.1%** of children in foster care is due to parental substance use, a decrease from 57.2% in 2019.
- **4** - Emergency Department visits with an Opioid Overdose Diagnosis, resulting in **1 Unintentional Opioid-related death**.
- **44** - Individuals, either uninsured or Medicaid, **served by a treatment program to address opioid use disorder** in 2020, decrease from 62 in 2019.
- **30.8%** of adults are Current Drinkers (have had at least one alcoholic drink in the past month)
  - **10.6% identify as Binge Drinkers**, increase from 4.9% in 2018.
  - **11.4% identify as Excessive Drinkers**, increase from 7.8% from 2018.
- **19.8%** of adults **Used Opiates/Opioids in the Past Year** (With/Without Prescription).

Revised Sept. 2021

Tool adapted by WNC Health Network from Buncombe County CHIP data team

SUBSTANCE ABUSE

WHAT'S HELPING?

- AMCHC Tallulah Health Center offers MAT services
- Awareness and discussion in the school system.
- Substance Use Coalition
- Celebrate Recovery

WHAT'S HURTING?

- MAT services offered have limited slots, resulting in longer wait times.
- “Stigma"
- No drug rehab, shelters, or transitional housing with core competencies for trauma informed care and recovery services".
- "Idle time is the worst for kids, and can result in following in the footsteps of friends and family who use".

WHAT ELSE DO WE KNOW?

- Data does not reflect the magnitude of the issue.
- We lack sufficient secondary data around substance abuse.
- Methamphetamine addiction and polysubstance use eclipses opioid use disorder.
- There are limited to no mass or widespread treatment options for methamphetamine use.
- Substance use is multigenerational

CURRENT ACTION

- Recovery to Work
- Juvenile Crime Prevention Council
- Community Linkage to Care
- Celebrate Recovery
- AVOID Vaping Education
- Launch of the needs assessment and collaborative planning process by GCDPH.
- Graham County Schools crisis/mental health team.

OBESITY

Community Health Assessment-Priority Setting Data Summary

Obesity, nutrition, and physical activity were some of the main concerns in both the Online Key Informant Survey and the school focus group. 45.5% of Graham County are Obese, meaning their BMI is 30.0 or higher. Weight on an individual level is not always an accurate indicator of health status, but on a population level it strongly correlates with many serious health conditions.

THE NUMBERS

Sources:
- PRC Community Health Survey, Professional Research Consultants, Inc. [Item 92]
- Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): North Carolina data.
- PRC National Health Survey, Professional Research Consultants, Inc.
- US Department of Health and Human Services. Healthy People 2030. http://www.healthypeople.gov.

Notes:
- Based on reported heights and weights; asked of all respondents.
- The definition of obesity is having a body mass index (BMI), a ratio of weight to height (kilograms divided by meters squared), greater than or equal to 30.0, regardless of gender.

WHAT DOES THIS MEAN FOR GRAHAM?

- While Obesity is at 45.5%, **Overweight** is higher at **77.7%**, increase from 70.0% in 2018. This is higher than the region at 68.7% and the nation at 61.0%.
- **24.8%** report having **no physical activity**, increase from 22.0% in 2018.
- Many chronic diseases are associated with obesity
  - **17.7%** report having **diabetes**, increase from 16.9% from 2018
  - **28.7%** report having **high cholesterol**, decrease from 34.3% in 2018
  - **41.5%** report having **high blood pressure**, decrease from 46.3% in 2018

Revised Sept. 2021

Tool adapted by WNC Health Network from Buncombe County CHIP data team

OBESITY

WHAT'S HELPING?

- School Food truck distributing breakfast and lunch to any children ages 0-18 during remote learn days and workdays.
- MANNA Food distribution monthly
- “Food stamps help people to have access to food that they would not have and the food boxes that are given out have a variety of food groups in them".
- Fitness Trail around the high school campus

WHAT'S HURTING?

- "There are very few healthy options for food in this county"
- "Healthy foods cost more, so people choose to eat unhealthy to afford more food".
- "Uneducated about how to eat healthy gets in the way too".
- "No gym/fitness center that offers exercise and nutrition classes, a place to workout".

WHAT ELSE DO WE KNOW?

- 59.89% of students qualify for free and reduced lunch.
- 22.2% report they ran out of food at least once in the past year and/or worried about running out of food in the past year.
- 14.1% report that often times/sometimes true that the food they bought just did not last, and we did not have money to purchase more.
- 16.2% report that often times/sometimes true they worried about whether their food would run out before they got money to buy more.

CURRENT ACTION

- MANNA
- Grace Place

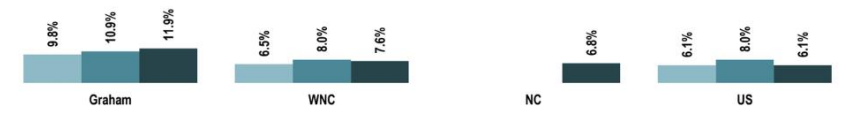
HEART DISEASE

Community Health Assessment-Priority Setting Data Summary

Heart disease is the leading cause of death in Graham County and was an issue of concern identified in the Online Key Informant Survey and the school focus group.

THE NUMBERS

Prevalence of Heart Disease
(By County)



Sources:
- PRC Community Health Survey, Professional Research Consultants, Inc. [Item 10]
- Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia. United States Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): North Carolina data.
- PRC National Health Survey, Professional Research Consultants, Inc.

Notes:
- Asked of all respondents.

WHAT DOES THIS MEAN FOR GRAHAM?

- **11.9%** report having heart disease, increase from 10.9% in 2018. Higher than region, state, and national rates.
- Hear Disease Mortality: 171 per 100,000 (2015-2019)
- Disparity **1.9 > Men (214) and Women (113.7)**

Revised Sept. 2021

Tool adapted by WNC Health Network from Buncombe County CHIP data team

HEART DISEASE

WHAT'S HELPING?

- Community leaders are talking about the issue and trying to come up with solutions
- Farmer's Market and produce stands available for healthy food options during the summer and fall months

WHAT'S HURTING?

- "Lack of substantial healthcare in the county"
- "Have to travel an hour or more for specialty providers and services"
- "Lack of more healthy food options in the late fall, winter, and early spring months"
- "No gym/fitness or recreation center"

WHAT ELSE WE KNOW?

- From WNC Healthy Impact Community Health Survey
  - 41.5% report a diagnosis of High Blood Pressure
  - 95.7% are taking steps to control Blood Pressure
  - 28.7% report a diagnosis of High Cholesterol

CURRENT ACTION

- Tallulah Health Clinic
- Smoky Mountain Urgent Care
- Paramedicine Program

Chapter 8 - Next Steps

"We are a community that loves and truly cares about our neighbors"
- Key Informant

Collaborative Planning

Collaborative planning with hospitals and other community partners will result in the creation of a community-wide plan that outlines what will be aligned, supported and/or implemented to address the priority health issues identified through this assessment process.

It is understood that community health assessment is an ongoing process. The Graham County Department of Public Health and the community will use this information to continue to work to improve and promote the health of Graham County. The Community Health Assessment will be used as the foundation for concerned citizens and community leaders to strengthen the capacity for moving forward to change both individual and community health outcomes.

Sharing Findings

The CHA will be disseminated in at least the following ways:

- Dissemination to the public – Graham County Department of Public Health website, GREAT (Graham Revitalization Economic Action Team) annual meeting, Graham County Library
- Dissemination to stakeholders – presentations to Graham County Board of Health, Graham County Board of Commissioners, GREAT annual meeting

Where to Access this Report

- WNC Health Network Website
- Graham County Department of Public Health website
- Graham County Library (in print)

For More Information and to Get Involved

Visit http://health.grahamcounty.org/ or email Ivey Robinson at ivey.robinson@grahamcounty.org

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PHOTOGRAPHY CREDITS

WNC CHA Cycle Graphic: Co-designed by WNC Healthy Impact, graphic design by Jessicca Griffin, 2021

All WNC landscape photos used in the cover page and headers courtesy of Ecocline Photography and Flying Horse Creative.

APPENDIX

Data Collection Methods & Limitations

Secondary Data Methodology

To learn about the specific factors affecting the health and quality of life of residents of WNC, the WNC Healthy Impact data workgroup and data consulting team identified and tapped numerous secondary data sources accessible in the public domain. For data on the demographic, economic and social characteristics of the region sources included: the U.S. Census Bureau; NC Department of Health and Human Services; NC Office of State Budget and Management; NC Department of Commerce; UNC-CH Jordan Institute for Families; NC Department of Public Instruction; NC Department of Justice; NC Division of Health Benefits; NC Department of Transportation; and the Cecil B. Sheps Center for Health Services Research. The WNC Healthy Impact data consultant team made every effort to obtain the most current data available at the time the WNC Healthy Impact Data Workbook was prepared. It is not possible to continually update the data past a certain date; in most cases that end-point is September 2021. Secondary data is updated every summer in between Community Health Assessment (CHA) years.

The principal source of secondary health data for the WNC Healthy Impact Data Workbook is the NC State Center for Health Statistics (NC SCHS), including its County Health Data Books, Behavioral Risk Factor Surveillance System, Vital Statistics unit, and Cancer Registry. Other health data sources included: NC Division of Public Health (DPH) Epidemiology Section; NC Division of Mental Health, Developmental Disabilities and Substance Abuse Services; the Centers for Disease Control and Prevention; National Center for Health Statistics; NC DPH Nutrition Services Branch; and NC DETECT.

Environmental data were gathered from sources including US Environmental Protection Agency; US Department of Agriculture; and NC Department of Environment and Natural Resources.

Because in any CHA it is instructive to relate local data to similar data in other jurisdictions, throughout this report representative county data is compared to like data describing the 16-county region and the state of NC as a whole. The WNC regional comparison is used as “peer” for the purposes of this assessment. Where appropriate and available, trend data has been used to show changes in indicators over time.

The WNC Healthy Impact data workbook contains only secondary data that are : (1) retrieved directly from sources in the public domain or by special request; and (2) are available for all 16 counties in the WNC Healthy Impact region. All secondary data included in the workbook are the most current available, but in some cases may be several years old. Names of organizations, facilities, and geographic

places presented in the tables and graphs are quoted exactly as they appear in the source data. In some cases, these names may not be those in current or local usage; nevertheless, they are used so readers may track a particular piece of information directly back to the source.

Gaps in Available Information

The COVID-19 pandemic impeded our ability to host our community listening sessions. While we were able to meet with representatives from Graham County Schools, we were not able to gather the input from our incarcerated population.

WNC Healthy Impact Community Health Survey (Primary Data)

Survey Methodology

The 2021 WNC Healthy Impact Community Health Survey was conducted from March to June 2021. The purpose of the survey was to collect primary data to supplement the secondary core dataset and allow individual counties in the region to collect data on specific issues of concern. The survey was conducted throughout the entire WNC Healthy Impact region, which includes the following 16 counties: Buncombe, Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Madison, McDowell, Mitchell, Polk, Rutherford, Swain, Transylvania and Yancey.

Professional Research Consultants, Inc. (PRC) designed and implemented the mixed-mode survey methodology, which included a combination of telephone (both landline and cell phone) interviews, online survey, as well as a community outreach component promoted by WNC Health Network and its local partners through social media posting and other communications. The survey methodology was designed to achieve a representative sample of the regional population that would allow for stratification by certain demographic characteristics, while also maximizing data collection timeliness and efficiency. Survey sampling and implementation methodology is described in greater detail below.

Survey Instrument

The survey instrument was developed by WNC Healthy Impact's data workgroup, consulting team, and local partners, with assistance from PRC. Many of the questions were derived from the CDC Behavioral Risk Factor Surveillance System (BRFSS) and other validated public health surveys. Other questions were developed specifically by WNC Healthy Impact, with input from regional and local partners, to address particular issues of interest to communities in western North Carolina. Each county was given the opportunity to include three additional questions of particular interest to their county, which were asked only of their county's residents.

The three additional county questions included in the 2021 survey were:

1) Since the beginning of the pandemic, would you say that your mental health: (has gotten worse, gotten better, or stayed about the same).

2) Part 1 of 2: The next question is about the coronavirus/COVID-19 vaccine. If an FDA-approved vaccine to prevent coronavirus/COVID-19 were available to you at no cost, would you get vaccinated? (Yes/ No)

3) Part 2 of 2: (If Yes) Would you want to receive this coronavirus/COVID-19 vaccination: (Immediately/Within 6 Months/In 6 Months to 1 Year/After More Than 1 Year)

Sampling Approach & Design

PRC designed the survey methodology to minimize sample bias and maximize representativeness by using best practice random-selection sampling techniques. They also used specific data analysis techniques, including poststratification, to further decrease sample bias and account for underrepresented groups or nonresponses in the population. Poststratification involves selecting demographic variables of interest within the population (here, gender, age, race, ethnicity, and poverty status) and then applying "weights" to the data to produce a sample which more closely matches the actual regional population for these characteristics. This technique preserves the integrity of each individual's responses while improving overall representativeness.

In order to determine WNC regional estimates, county responses were weighted in proportion to the actual population distribution to appropriately represent Western North Carolina as a whole. Since the sample design and quality control procedures used in the data collection ensure that the sample is representative, the findings may be generalized to the region with a high degree of confidence

Survey Administration

PRC piloted the survey through 30 interviews across the region and consulted with WNC Health Network staff to resolve substantive issues before full implementation. PRC used trained, live interviewers and an automated computer-aided telephone interviewing system to administer the survey region-wide. Survey interviews were conducted primarily during evening and weekend hours, with some daytime weekday attempts. Interviewers made up to five call attempts per telephone number. Interviews were conducted in either English or Spanish, as preferred by respondents. The final sample included 56 (56.4) percent cell phone-based survey respondents and 44 (43.6) percent landline-based survey respondents. Including cell phone numbers in the sampling algorithm allowed better representation of demographic segments that might otherwise be under sampled in a landline-only model.

PRC worked with a third-party provider to identify and invite potential respondents for an online survey for a small proportion (3.5%) of the sample population. The online survey was identical to the telephone survey instrument and allowed better sampling of younger and more urban demographic segments.

PRC also created a link to an online version of the survey, and WNC Health Network and its local partners promoted this online survey link throughout the various communities in order to drive additional participation and bolster overall samples. This yielded an additional 1,717 surveys, and locally an additional 33.

About the Graham County Sample

Size: The total regional sample size was 4,861 individuals aged 18 and older, with 157 from our county. PRC conducted all analysis of the final, raw dataset.

Sampling Error: For county-level findings, the maximum error rate at the 95% confidence level is approximately ±4.0% (Buncombe and Henderson counties), ±4.6% (Polk County), ±5.1% (Jackson and Madison counties), or ±6.9% (all other counties).

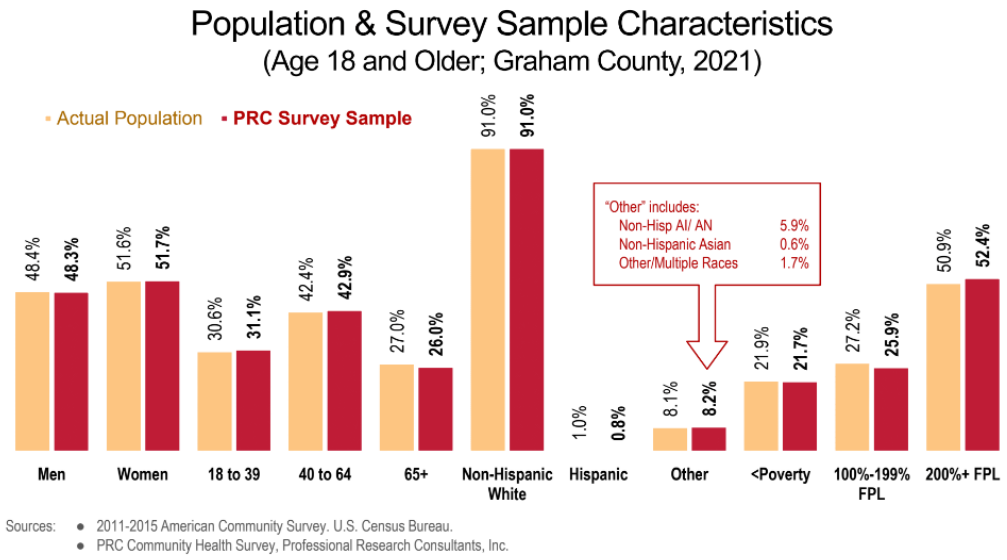
Expected error ranges for a sample of 157 respondents at the 95% confidence level.

The "response rate" (the percentage of a population giving a particular response) determines the error rate associated with that response. A "95 percent level of confidence" indicates that responses would fall within the expected error range on 95 out of 100 trials.

Examples:

- If 10% of a sample of 200 respondents answered a certain question with a "yes," it can be asserted that between 6.0% and 14.0% (10% ± 4.0%) of the total population would offer this response.
- If 50% of respondents said "yes," one could be certain with a 95 percent level of confidence that between 43.1% and 56.9% (50% ± 6.9%) of the total population would respond "yes" if asked this question.

Characteristics: The following chart outlines the characteristics of the survey sample for [COUNTY] by key demographic variables, compared to actual population characteristics from census data. Note that the sample consists solely of area residents aged 18 and older.



Benchmark Data

North Carolina Risk Factor Data

Statewide risk factor data are provided where available as an additional benchmark against which to compare local survey findings; these data are reported in the most recent BRFSS (Behavioral Risk Factor Surveillance System) Prevalence and Trend Data published by the Centers for Disease Control and Prevention and the US Department of Health & Human Services.

Nationwide Risk Factor Data

Nationwide risk factor data, which are also provided in comparison charts where available, are taken from the 2020 PRC National Health Survey; the methodological approach for the national study is identical to that employed in this assessment, and these data may be generalized to the US population with a high degree of confidence.

Healthy People 2030
Since 1980, the Healthy People initiative has set goals and measurable objectives to improve health and well-being in the United States. The initiative's fifth edition, Healthy People 2030, builds on knowledge gained over the past 4 decades to address current and emerging public health priorities and challenges.

An interdisciplinary team of subject matter experts developed national health objectives and targets for the next 10 years. These objectives focus on the most high-impact public health issues and reflect an increased focus on the social determinants of health — how the conditions where people live, work, and play affect their health and well-being.

Survey Limitations and Information Gaps

Limitations

The survey methodology included a combination of telephone (both landline and cell phone) interviews, as well as an online survey. Limitations exist for these methods. For example, potential respondents must have access to a landline or a cell phone to respond to the telephone survey. In addition, the telephone survey sample included landlines (versus cell phones), which may further skew responses to individuals or households with landlines.

The PRC online survey component also has inherent limitations in recruitment and administration. Respondents were recruited from a pre-identified panel of potential respondents. The panel may not be representative of the overall population.

Additionally, PRC created an online survey link, which was promoted by WNC Health Network and its local partners through social media posting and other communications. The online survey link respondents might not be representative of the overall population.

A general limitation of using online survey technology is that respondents must interpret survey questions themselves, rather than have them explained by a trained, live interviewer. This may change how they interpret and answer questions.

Lastly, the technique used to apply post stratification weights helps preserve the integrity of each individual's responses while improving overall representativeness. However, this technique can also exaggerate an individual's responses when demographic variables are under-sampled.

Information Gaps
This assessment was designed to provide a comprehensive and broad picture of the health of the community overall. It does not measure all possible aspects of health in the community, nor does it represent all possible populations of interest. For example, due to low population numbers, members of certain racial/ethnic groups (e.g., Black, AI/AN, Hispanic/ Latinx, etc.) may not be identifiable or represented in numbers sufficient for independent analyses. In these cases, information gaps may limit the ability to assess the full array of the community's health needs.

Online Key Informant Survey (Primary Data)

Online Survey Methodology

Survey Purpose and Administration

The 2021 Online Key Informant Survey was conducted in June and July 2021. WNC Healthy Impact, with support from PRC, implemented an Online Key Informant Survey to solicit input from local leaders and stakeholders who have a broad interest in the health of the community. WNC Healthy Impact shared with PRC a list of recommended participants, including those from our county. This list included names and contact information for physicians, public health representatives, other health professionals, social service providers, and a variety of other community leaders. Potential participants were chosen because of their ability to identify primary concerns of the populations with whom they work, as well as of the community overall.

Key informants were contacted through an email that introduced the purpose of the survey and provided a link to take the survey online. Reminder emails were sent as needed to increase participation.

Survey instrument

The survey provided respondents the opportunity to identify important health issues in their community, what is supporting or getting in the way of health and wellbeing in their community, and who in their community is most impacted by these health issues.

Participation

In all, 8 community stakeholders took part in the Online Key Informant Survey for our county, as outlined below:

Local Online Key Informant Survey Participation		
Key Informant Type	**Number Invited**	**Number Participating**
Community Leader	5	0
Other Health Provider	5	3
Physician	1	0
Public Health Representative	3	3
Social Services Provider	2	2

Through this process, input was gathered from several individuals whose organizations work with low-income, minority populations, or other medically underserved populations.

Survey Limitations

The Online Key Informant Survey was designed to gather input from participants regarding their opinions and perceptions of the health of the residents in the area. Thus, these findings are based on perceptions, not facts.

To collect this data, purposive sampling (a type of non-probability sampling which targets a specific group of people) was used. Unlike the random sampling technique employed in the telephone survey, the purpose is not to make generalizations or statistical inferences from the sample to the entire population, but to gather in-depth insights into health issues from a group of individuals with a specific perspective.

Local Survey Data or Listening Sessions

One listening session was held with staff from Graham County Schools to gather information around the health priorities. Unfortunately, an additional listening session was canceled due to a Covid-19 outbreak at our county jail.

Data Definitions

Reports of this type customarily employ a range of technical terms, some of which may be unfamiliar to many readers. Health data, which composes a large proportion of the information included in this report, employs a series of very specific terms which are important to interpreting the significance of the data. While these technical health data terms are defined in the report at the appropriate time, there are some data caveats that should be applied from the onset.

Error

First, readers should note that there is some error associated with every health data source. Surveillance systems for communicable diseases and cancer diagnoses, for instance, rely on reports submitted by health care facilities across the state and are likely to miss a small number of cases, and mortality statistics are dependent on the primary cause of death listed on death certificates without consideration of co-occurring conditions.

Age-adjusting

Secondly, since much of the information included in this report relies on mortality data, it is important to recognize that many factors can affect the risk of death, including race, gender, occupation, education and income. The most significant factor is age because an individual's risk of death inevitably increases with age. As a population ages, its collective risk of death increases; therefore, an older population will automatically have a higher overall death rate just because of its age distribution. At any one time some communities have higher proportions of "young" people, and other communities have a higher proportion of "old" people. In order to compare mortality data from one community with the same kind of data from another, it is necessary first to control for differences in the age composition of the communities being compared. This is accomplished by age-adjusting the data.

Age-adjustment is a statistical manipulation usually performed by the professionals responsible for collecting and cataloging health data, such as the staff of the NC State Center for Health Statistics (NC SCHS). It is not necessary to understand the nuances of age-adjustment to use this report. Suffice it to know that age-adjusted data are preferred for comparing most health data from one population or community to another and have been used in this report whenever available.

Rates

Thirdly, it is most useful to use rates of occurrence to compare data. A rate converts a raw count of events (deaths, births, disease or accident occurrences, etc.) in a target population to a ratio representing the number of same events in a standard population, which removes the variability associated with the size of the sample. Each rate has its own standard denominator that must be specified (e.g., 1,000 women, 100,000 persons, 10,000 people in a particular age group, etc.) for that rate.

While rates help make data comparable, it should be noted that small numbers of events tend to yield rates that are highly unstable, since a small change in the raw count may translate to a large change in rate. To overcome rate instability, another convention typically used in the presentation of health statistics is data aggregation, which involves combining like data gathered over a multi-year period,

usually three or five years. The practice of presenting data that are aggregated avoids the instability typically associated with using highly variable year-by-year data, especially for measures consisting of relatively few cases or events. The calculation is performed by dividing the sum number of cases or deaths in a population due to a particular cause over a period of years by the sum of the population size for each of the years in the same period.

Health data for multiple years or multiple aggregate periods is included in this report wherever possible. Sometimes, however, even aggregating data is not sufficient, so the NC SCHS recommends that rates based on fewer than 20 events—whether covering an aggregate period or not—be considered unstable. In fact, in some of its data sets the NC SCHS no longer calculates rates based on fewer than 20 events. To be sure that unstable data do not become the basis for local decision-making, this report will highlight and discuss primarily rates based on 20 or more events in a five-year aggregate period, or 10 or more events in a single year. Where exceptions occur, the text will highlight the potential instability of the rate being discussed.

Regional arithmetic mean

Fourthly, sometimes in order to develop a representative regional composite figure from sixteen separate county measures the consultants calculated a regional arithmetic mean by summing the available individual county measures and dividing by the number of counties providing those measures. It must be noted that when regional arithmetic means are calculated from rates the mean is not the same as a true average rate but rather an approximation of it. This is because most rates used in this report are age adjusted, and the regional mean cannot be properly age-adjusted.

Describing difference and change

Fifthly, in describing differences in data of the same type from two populations or locations, or changes over time in the same kind of data from one population or location—both of which appear frequently in this report—it is useful to apply the concept of percent difference or change. While it is always possible to describe difference or change by the simple subtraction of a smaller number from a larger number, the result often is inadequate for describing and understanding the scope or significance of the difference or change. Converting the amount of difference or change to a percent takes into account the relative size of the numbers that are changing in a way that simple subtraction does not and makes it easier to grasp the meaning of the change.

For example, there may be a rate of for a type of event (e.g., death) that is one number one year and another number five years later. Suppose the earlier figure is 12.0 and the latter figure is 18.0. The simple mathematical difference between these rates is 6.0. Suppose also there is another set of rates that are 212.0 in one year and 218.0 five years later. The simple mathematical difference between these rates also is 6.0. But are these same simple numerical differences really of the same significance in both instances? In the first example, converting the 6-point difference to a percent yields a relative change factor of 50%; that is, the smaller number increased by half, a large fraction. In the second example, converting the 6-point difference to a percent yields a relative change factor of 2.8%; that is, the smaller number increased by a relatively small fraction. In these examples the application of percent makes it very clear that the difference in the first example is of far greater degree than the difference in the second example. This document uses percentage almost exclusively to describe and highlight degrees of difference and change, both positive (e.g., increase, larger than, etc.) and negative (e.g., decrease, smaller than, etc.).

Data limitations

Some data that is used in this report may have inherent limitations, due to the sample size, its geographic focus, or its being out-of-date, for example, but it is used nevertheless because there is no better alternative. Whenever this kind of data is used, it will be accompanied by a warning about its limitations.